DOCUMENT RESUME

ED 029 988 08 VT 008 598

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Effect of Internal-External Control on Learning and Participation in Occupational Education. Center Research Monograph No.1.

North Carolina Univ., Raleigh. N.C. State Univ. Center for Occupational Education.
Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No-BR-7-0348
Pub Date 68
Grant-OEG-2-7-070348-2698
Note-137p.
EDRS Price MF-$0.75 HC-$6.95
Descriptors-Behavior Change, *Behavior Theories, Controlled Environment, Disadvantaged Groups, Environmental Research, Individual Characteristics, *Information Utilization, *Learning Theories, *Prisoners, Questionnaires, Reinforcement, Self Actualization, Self Concept, Self Control, Social Attitudes, Social Environment, Social Influences, *Vocational Education

The purpose of this study was two-fold: (1) to determine the effect of internal-external control on retention of control-relevant versus non-control relevant information, and (2) to investigate differences among internal and external prison inmates in their participation in occupational education programs. The sample of 216 inmates, ranging in age from 18 to 65 years, were from a correctional institution in North Carolina. The treatment consisted of manipulating the perceived relevancy of parole information to the prison inmate's chances of achieving parole. The data are presented in three parts, by test of (1) the retention hypotheses, (2) hypotheses concerning participation in occupational education, and (3) reliability of the instruments used in the study. It was concluded that a person can be described as possessing a generalized expectancy of control or lack of control over his environment, and that this characteristic can affect his willingness to learn information or engage in activities that could reasonably be expected to increase his chances of control over his environment, such as participation for employability. (CH)

EFFECT OF [illegible] CONTROL ON LEARNING AND PARTICIPATION IN OCCUPATIONAL EDUCATION

JOHN M. PETERS

DEPARTMENT OF ADULT EDUCATION

NORTH CAROLINA STATE UNIVERSITY AT RALEIGH

Center Research Monograph No. 1

CENTER FOR OCCUPATIONAL EDUCATION

NORTH CAROLINA STATE UNIVERSITY AT RALEIGH

1968

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION—BUREAU OF RESEARCH
DIVISION OF COMPREHENSIVE AND VOCATIONAL
EDUCATION RESEARCH
PROJECT NO. 8C-70348—GRANT NO. OEG-2-7-070348-2698

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EFFECT OF INTERNAL-EXTERNAL CONTROL ON LEARNING AND PARTICIPATION IN OCCUPATIONAL EDUCATION

Project No. BR 70348
Grant No. OEG 2-7-070348-2698

JOHN M. PETERS

1968

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The research reported herein was performed pursuant to a grant with the Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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Center Research Monograph No. 1

CENTER FOR OCCUPATIONAL EDUCATION

North Carolina ~~State~~ Univ~~ersity~~ ~~at~~ Raleigh

Raleigh, North Carolina

PREFACE

The problem of providing quality occupational education for persons with academic, socioeconomic, or other handicaps which prevent them from succeeding in regular programs of vocational education necessitates that attention be given to understanding how these persons live, what they believe, the value systems to which they subscribe, and the individual and social correlates of behavior. But understanding, per se, is not enough. The challenge which confronts occupational educators in contemporary American society is whether programs may be developed that effect changes in the mode of thinking, acting, and perceiving to the extent that millions of Americans who live and exist outside the social and economic mainstream of society can be introduced into the productive life of the Nation.

One promising line of attack is centered in the inner feelings of the individual toward the control he has over his environment. This concept suggests two lines of action. A more deterministic line of action is to classify individuals according to the degree of internal-external orientation, and to concentrate educational inputs on the individuals who are internally oriented. But a more fundamental line of action is to question whether control over environment is preordained. If determinism is rejected, then action may be directed toward changing the individual's orientation toward the control of his environment, i.e., to devise programs and treatments which

are designed to change the externally oriented individual to an internally oriented individual.

The present study does not approach the action level; however, it does bridge the gap between the theoretical framework underlying the conceptual basis of internal-external control and practical problems related to occupational education. And it does point the way toward further study of ways by which the educationally unreached may be reached.

The Center is indebted to Dr. John M. Peters who directed the study, and to the following members of the panel who reviewed the report:

William J. Block, Ph. D., Professor and Head, Politics

Edgar J. Boone, Ph. D., Professor and Head, Adult Education

J. Clyde Johnson. Ed. D., Professor of Psychology

Emily H. Quinn, Ph. D., Professor of Adult Education

The Center also conveys its appreciation to Dr. Gertrude M. Cox, Professor Emeritus of Experimental Statistics, North Carolina State University at Raleigh, for her consultative services on the design of the study, and acknowledges the cooperation of the staff of the North Carolina Department of Correction in conducting the study.

John K. Coster, Director
Center for Occupational Education

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INTRODUCTION

Problem

The purpose of this study is to explicate a psychological correlate of an individual's behavior directed toward control over his environment. Two questions are central to the present investigation: (1) What effect does an internal or external attitude have upon an individual's willingness to learn control relevant versus non-control relevant information; and (2) Do differences exist among internal and external prison inmates in their participation in occupational education programs? Tentative answers to these questions are provided by hypotheses couched in a theoretical framework developed from social learning theory and related conceptions, plus empirical research findings.

Background of Problem

Prior to discussing the theoretical framework which undergirds this study, this section provides an overview of the concept of internal-external control and related theories and research from which the investigation was conceived. A more detailed review of literature completes this section.

Internal-External Control[1/]

A useful conceptualization of any construct involves three interrelated but increasingly narrow levels of

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[1/] Measurement of this variable is made with the use of the Internal-External Control scale described on pages 39-41.

definition: the conceptual, the theoretical, and the operational (Rotter, et al., 1962, p. 498). A conceptual definition is a verbal description of the construct which has inherent in it all the surplus meaning attached to that construct. The theoretical definition specifies the antecedent conditions and subsequent responses which the construct mediates and its systematic relationships to other theoretically relevant constructs. The methods used to measure the construct or infer its operations represent its operational definition. These three levels of definitions will be treated in this and subsequent sections of the study, the first drawing heavily on the conceptual definition advanced by Rotter, et al. (1962).

The construct of internal-external control of reinforcement is central to the present investigation. On the conceptual level, internal control describes an individual who in a specific situation or class of situations believes that what has happened, is happening or will happen, is directly related to what he has done, is doing, or will do in those situations. If "good" things happen, he thinks that this is the case because he has worked hard enough or skillfully enough to make them happen that way. On the other hand, he feels equally responsible for the "bad" events which happen to him. If he attempts and fails to obtain certain rewards then he either didn't try hard enough, didn't go about it in the right way, wasn't skillful enough or is in some other way responsible for his past, present, and future failures or

misfortunes. It follows that an individual when engaging in this type of causal thinking would tend to be active in the pursuit of satisfactions and be apt to adopt behavioral alternatives provided he did not carry this belief to an extreme or unrealistic extent (Rotter, et al., 1962).

In contrast the image of external control pertains to an individual who is engaging in the belief that what happens to him in certain situations is unrelated to what he does in those situations. He achieves satisfactions because he is lucky, other people are responsible, fate is on his side or it was "just one of those things." The cause of the negative events which happen to him are attributed to forces beyond his understanding and/or control. Failure to attain desired goals or punishments of any kind are attributed to anything but his own activities or lack of them in certain situations. Closely related to a belief in external control is the notion that there is little or no use in engaging in certain activities since what happens is not dependent upon these activities. Also implied in external control is a lack of confidence in one's abilities to control what happens to him in particular situations.

As a general principle, then, internal control refers to the perception of positive and/or negative events as being a consequence of one's own actions and thereby under personal control. Whereas external control refers to the perception of positive and/or negative events as being unrelated to

one's own behaviors in certain situations and therefore beyond personal control.

Social Learning Theory

Most investigations of internal-external control have been conducted within the framework of social learning theory (Rotter, 1954). Social learning theory contends that the potential for any behavior to occur in a given situation is a function of (1) the individual's expectancy that his behavior will secure an available reinforcement and (2) the value of the available reinforcement for that individual. In a particular situation the individual, through desirous of an available goal, may believe that there is no behavior in his repertoire that will allow him to be effective in securing the goal. Within this specific situation, a person may be described as anticipating no contingency between any effort on his part and the end results in the situation. The problem of contingency between act and effect may best be understood by a consideration of the construct of internal-external control, as defined earlier.

Rotter's social learning theory has employed a basic formula, utilizing the three variables of behavior potential, expectancy, and reinforcement value. Rotter's original formula is

$$B.P._{x,s_1,R_a} = f(E_{x,R_a,s_1} \ \& \ R.V._a)$$

which may be read as: The potential for behavior x to occur

in situation l in relation to reinforcement a is a function of the expectancy of the occurrence of reinforcement a following behavior x in situation l and the value of reinforcement a (Rotter, 1954, p. 108).

Behavior potential is defined by Rotter (1954, p. 104) as the potentiality of any behavior to occur in any given situation or situations as calculated in relation to any reinforcement(s). Behavior is meant to include both overt and covert actions, or "any action of the organism that involves a response to a meaningful stimulus and that may be measured directly or indirectly." Expectancy is defined as "the probability held by the individual that a particular reinforcement will occur as a function of a specific behavior on his part in a specific situation or situations." This expectancy is conceived as an internal expectancy, as opposed to an "objective" expectancy as determined by one's wager or bet based on predetermined probabilities, and is assumed to be easily influenced by a person's own past experiences.

Reinforcement value is defined as "the degree of preference for any reinforcement to occur if the possibilities of their occurring were all equal." Such preferences are assumed to be independent of the expectancy of a forthcoming reinforcement. Like behavior potential, reinforcement value would have to be calculated in a choice situation and any obtained measure of reinforcement value would be relative only to other known alternative reinforcements (Rotter, 1954, p. 108).

Motivation

The explanation of behavior provided by Rotter is closely related to Atkinson's (1957) theory of motivation. For Atkinson, "the strength of motivation to perform some act is assumed to be a multiplicative function of the strength of a motive, the expectancy (subjective probability) that the act will have as a consequence the attainment of an incentive, and the value of the incentive: Motivation = f(Motive x Expectancy x Incentive)" (Atkinson, 1957, pp. 360-361).

Motive is conceived by Atkinson as a stable disposition to strive for a certain kind of satisfaction, or a "capacity for satisfaction." This motive-disposition is assumed to be latent until aroused by situation cues (or "the appropriate expectancies") which indicate that performance of some act is instrumental to attainment of the goal of that motive. Expectancy is defined as a cognitive anticipation (aroused by cues in a situation) that performance of some act will be followed by a particular consequence. The strength of the expectancy is viewed as the subjective probability of the consequences, given the act. The incentive variable represents the relative attractiveness of a specific goal that is offered in a situation, or the relative unattractiveness of an event that might occur as a consequence of some act (Atkinson, 1957, p. 360; Atkinson and Reitman, 1956, p. 361).

Both Atkinson's concept of motivation and the construct of internal-external control have been used to explain behavior

in a situation involving decision making under conditions of risk (Liverant and Scodel, 1960; Atkinson and Reitman, 1956). Internally controlled persons are conceptualized as persons who attempt to maintain control in chance-dominated situations by a cautious and planned selection of probabilities, whereas externally controlled persons decide according to "hunches" or previous outcomes. Atkinson's theory would predict that, when given a choice among tasks of varying difficulty, persons in whom the achievement motivation is stronger should prefer intermediate risk tasks ($p = .50$), whereas persons in whom the motive to avoid falure is stronger should avoid intermediate risks, preferring instead either very easy or very difficult undertakings. Similarly, the principal difference between internals and externals in this regard is that internals tend to choose significantly more intermediate probability bets than externals, who tend to select very low or very high probability bets (Liverant and Scodel, 1960).

What this comparison implies is that not only do expectancies for success seem to determine the direction of behavior in both theories, but also that internals generally react in a similar manner to persons in which the achievement motivation is stronger than fear or failure when confronted with level of aspiration tasks. The implication for the present study is that both theoretical frameworks and empirical findings related to them can serve to support the contention that expectancy of success is a crucial factor in determining goal

directed behavior in situations which offer the individual alternative paths to manipulating his environment.

Alienation

Alienation, used chiefly in the area of sociology, is logically related to internal-external control as both may be concerned with the antecedents and consequences of the individual's sense of powerlessness.[2/] Both have psychological and sociological dimensions. In relation to learning, the attempt is at understanding how the individual's sense of control over his reinforcements has a bearing on his performance (on the learning or generalization of expectancies). On the sociological side, those who have employed the concept of alienation have sought to explain the consequences of limited personal control over events in modern society (Rotter, et al.,1962, p. 482).

The variant of alienation as powerlessness is the most frequent usage in current literature. This concept of alienation is conceived by Seeman (1963, p. 270) as "the expectancy or probability held by the individual that his own behavior cannot determine the occurrence of the outcomes, or reinforcements he seeks." The concept as used here does not refer specifically to the objective conditions in society

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2/ The concept of alienation has been used by different authors to specify related but different kinds of social behavior, including its use in terms of normlessness, social isolation and self-estrangement (Seeman, 1959; Dean, 1961).

(the "state of affairs"), but rather to the individual's expectations of such conditions. Additionally, this concept of powerlessness does not refer to the frustration an individual may feel as a consequence of the discrepancy between the control he may expect and the degree of control that he desires - that is, it takes no direct account of the value of control to the person (Seeman, 1964).

The use of these concepts is evident in the review of literature section of this study. The relationships among the various notions regarding an individual's control over his environment become even more evident as empirical results seem closely related among researches conducted within the framework of concepts and theories which hertofore have seemed unrelated.

Research Findings[3/]

Recent research (Rotter, 1966; Rotter, et al., 1962) indicates that persons develop generalized expectancies in learning situations in regard to whether or not reinforcement, reward or success in these situations is dependent upon their own behavior or is controlled by external forces. Not only do individuals differentiate reinforcements as internally or externally determined, but they also differ in a generalized expectancy in how they regard the same

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[3/] Only a brief overview of related research findings will be discussed at this point. A more detailed review can be found on pages 21-37.

situation. Such generalized expectancies can be measured and are predictive of behavior in a variety of circumstances.

A number of investigations in the behavioral sciences during the past decade have examined the concept of internal-external control for its significance in explaining such diverse behavior as learning, social action taking, risk taking, conformity, political affiliation, and level of aspiration (Lefcourt, 1966; Rotter, 1966). Individuals differentially characterized by the control construct have been found to differ in their ability to learn tasks or information ranging from line-matching exercises (James, 1957) to health-related information on the part of persons interned in a hospital (Seeman, 1962).

What is apparent in these and other related studies is that persons differing in a generalized expectancy of control will exhibit different rates of learning certain information, but that this generalized attribute is not predictive of a general ability to learn all kinds of information. Rather, it seems only to relate to learning of information that would provide tools necessary to effecting control over the individual's outcome. Differences in ability to learn "control relevant" information may be expected to occur among persons according to how they perceive themselves as shaping their own destiny. Persons with external attitudes, for example, would see little purpose in learning such information since they may perceive their outcome as unrelated to their own

efforts in the first place. Internals, on the other hand, may consider their efforts in learning to be functionally related to achieving a goal.

In a study closely related to the present one, Seeman (1963) attempted to determine differences in willingness to learn control relevant and non-control relevant information on the part of inmates of a correctional institution differing in degree of alienation. Although Seeman found scores of inmates on his alienation scale to correlate with amount of control relevant information learned but not with non-control relevant information, the later information was generally considered easier to learn and, hence, could have produced the apparent differences discovered by Seeman. With this and other methodological difficulties present in Seeman's research,[4/] the problem of operationalizing the "control relevancy" feature is left unsolved. The present investigation attempts to attack this problem more directly than did Seeman, avoiding most of the methodological pitfalls of the latter study.

In regard to participation in occupational education, recent studies have indicated that the antecedents of feelings of lack of control over one's environment may describe those persons possessing few tools with which to exercise such control; e.g., education, employment, income (Battle and

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[4/] Discussed on page 27, under Review of Literature.

Rotter, 1963; Coleman, 1966; Craven, 1961). It seems reasonable to assume, therefore, that participation in activities designed to provide such tools may also be deemed control relevant behavior, as such behavior could lead to changes in the person's subsequent behavior and life conditions. The existing literature relating to participation in formal educational programs of any kind emphasizes demographic characteristics (age, sex, race) or social background of those who exhibit different rates of participation (Dutton, 1967). This leaves unexplored the possible psychological correlates of participation such as the personality variable included in the present investigation.

The foregoing findings (discussed in greater detail in the Review of Literature), plus the conceptualizations reviewed earlier, help form the theoretical perspective and subsequent hypotheses for this investigation.

Theoretical Perspective

Seeman's (1966, p. 354) "structure - alienation -behavior" sequence model depicts alienation (in the sense of powerlessness) as the consequence of such social structure forces as the decline of kinship as a criterion of social position, the concomitant rise of anonymity and impersonality, and the development of secularized social forms (bureaucracy, mechanization, etc.) An important corollary to powerlessness, internal vs. external control of reinforcements, may have many of the same

antecendent conditions and, consequently, result in similar kinds of behavior.

More specifically, "externality" may stem from the failure of the individual to continue to receive the kinds of reinforcements that would provide satisfaction resulting from the successful control of his environment. Social learning theory would predict a dimunition of expectancies with a continued failure of related reinforcements to occur. The occurence (or non-occurence) of a given reinforcement produces changes in expectancy for the occurrence of other reinforcements. Expectancy, then, is considered to be both (1) a function of probability which can be calculated from past histories of reinforcements, and (2) a <u>generalization</u> of expectancies resulting from other related behavior reinforcement sequences. Such generalization effects may or may not be relevant to present conditions. They may represent the failure of the individual to make the differentiations that are necessary for adequate or efficient adjustment to any situation. Such effects may be illustrated by the person who has been rebuffed by a peer and who therefore consistently expects rejection from other people even though such rejection is not likely to occur.

The historical antecedents of externality in the form of failure of reinforcements to occur may be generic to the individual's sense of control over socio-political events, to include control over the political system, the economy,

international affairs, etc. External attitudes may be conceived as the result of the individual being "separated" from effective control over his economic destiny; of his being used for purposes other than his own; being "involved" in public affairs but having even less the feeling that he can understand or influence the very events upon which his life and well-being is known to depend (Dean, 1961; Kris and Leites, 1950). Externality may in turn result in alienated behavior, such as political passivity, racial and religious prejudice, and avoiding the kind of knowledge that would help change the individual's conditions. High externality goes with limited knowledge about one's life situation, for, in an important sense, knowledge acquisition is irrelevant for those who believe that external forces control the fall of events. This reasoning, then, helps form a basic proposition of this study; that an individual's generalized expectancy of control over his environment is a crucial factor in the learning process.

Rotter's basic formula (p. 4) in his social learning theory depicts behavior in a specific situation as being a function of a specific expectancy that a reinforcement will occur and of the value of the reinforcement for that individual. Rotter theorized that both behavior potential and expectancies for success are situation bound. The effect of an expectation of and value for a reinforcement is seen to be dependent upon the "psychological situation" in which the individual is

responding. The emphasis on the situation indicates that the internal-external construct is not conceived as a typology whereby people can be dichotomously classified but as a hypothetical construct to account for intraindividual and interindividual response variations in specific situations (Rotter, et al., 1962, p. 499).

Contrary to the above supposition, results of empirical investigations using the I-E Scale have shown that an individual may develop a generalized expectancy for control, but that such an expectancy will not necessarily manifest itself in everything that the individual does or encounters. To this extent, and in agreement with Rotter's theory, the construct does not describe a generalized withdrawal on the part of the individual. What is evident, however, is that individuals can be described as possessing internal expectations or external expectations, and in this sense are "typed" according to their expectations for control. What seems important then, is the question of the different kinds of behavior exhibited by individuals differentially characterized by the construct. Individuals so characterized by the internal-external control construct may be expected to behave differently toward the same goal. Futhermore, individuals do not necessarily have to exhibit expectancies specific to the kind of goal toward which they are directed. Hence, it is postulated that differences in behavior by individuals characterized as internals or externals depend upon the relevancy of

their potential behavior to effecting control over their environment. Hence, the construct of internal-external control would deal with an individual's expectancies for control which govern his behavior in determinate, yet discriminating, ways.

The foregoing assumptions, based on an interpretation of social learning theory, related conceptions, and empirical findings bearing on the subject, call for a reformulation of Rotter's basic model as depicted on page four. Thus, to guide the present investigation, the following revision in the model is presented:

$$BP_{x,s_1,R_a} = f(GE \times CR_{B_x} \times RV_a).$$

The model may be interpreted as: The potential for an individual's behavior x to occur in situation 1, directed toward a potential reinforcement a, is a multiplicative function of a generalized expectancy of control over the environment, the perceived control relevancy of behavior x, and the value of the reinforcement a for the individual. This model differs from Rotter's model in the emphasis on the underlined variables above. There remains a concern for the situation, in that an individual's behavior toward an objective may vary according to the immediate situation in which he finds himself, in relation to the specific kind of reinforcement (goal) in question. The expectancy for control

(GE) however, may be generic[5] to a host of life concerns - politics, war, achievement, social affairs - yet discriminate in the kinds of behavior it affects. This latter feature is thought to depend on the relevancy of the potential behavior (CR_{B_x}) to control over the reinforcement in question.

Hypotheses

The findings of this study should reflect upon the accuracy of the foregoing assumptions. The undergirding postulate of this study is that the potentiality for behavior to occur is a function of the individual's generalized expectancy of control over events in his environment, the value of the reinforcement, and the perceived relevancy of the individual's behavior to effectance of control over his environment. The expectancy element is conceived to vary, depending on the individual's perception of the locus of causality being in his own behavior or in forces outside his control (i.e., internal-external control). If a situation could be defined wherein the perceived relevancy to control of an individual's learning behavior is varied, one would expect the learning behavior itself to vary, depending upon the person's generalized expectancy for control, and upon the value of a reinforcement to the individual.

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[5] It should be made clear that a more specific expectation to achieve a goal may affect a person's motivation to try a task. However, the crucial point is that the expectancy variable need not be limited to a particular class of objects, but could be general in nature and still be effective.

The first dimension of this investigation is designed to provide the situation described above, as it attempts to manipulate the perceived relevancy of information to be learned to individuals' control over their outcome, across varying degrees of generalized expectancies for control, with value of the outcome held constant. It will attempt to test the following tentative answers to question one on page one of this study:

1. Internal individuals and external individuals will differ in the amount of information learned, depending on their perception of the relevancy of the information to control over their environment.

The same hypothesis may be stated more specifically as:

2. Internals will learn more control-relevant information than will externals.
3. Internals and externals will learn non-control relevant information equally as well.

The second dimension of this study, concerned with participation in occupational education programs by prison inmates, may logically be derived from the same theoretical framework as were the foregoing hypotheses. The antecedents of externality, or a low expectancy for control, seem to be described by the characteristics of the lower socio-economic groups in our society (Coleman, 1966; Battle and Rotter, 1963; Craven, 1961). Individuals characterized by such conditions are assumed to have few tools, such as income or education,

with which to manipulate their environment. It seems reasonable to assume, therefore, that participation in activities designed to provide such tools may also be deemed control relevant behavior, as such behavior could lead to changes in the person's subsequent behavior and life conditions. Such control relevant behavior is manifest in participation in programs of occupational education for inmates of correctional institutions. Programs are provided for the purpose of increasing the inmate's ability to adjust occupationally and socially upon re-entrance into society. Such training ideally would provide the inmate with tools necessary for control over his environment; e.g., employment as a free citizen. However, programs of occupational education are not participated in by all inmates who have equal access to such activities. One reason may be that those inmates who choose not to participate feel that such behavior on their part will make little if any difference in their outcome.

Assuming that a high value is therefore placed on acquiring the tools needed for advancement, such as education, the major conditions to be satisfied are (1) whether effort expended by the individual will result in a better (economic) position or advancement, and (2) the expectancy that the individual, through his own efforts, will be able to accomplish some goal by exerting himself on his environment, versus the expectancy of control to be centered on forces outside individual effort. The first condition pertains to

the relevancy of such behavior to later control, or achievement of a goal, and the second condition refers to the individual's generalized expectancies for mastery of his environment. Given an educational program designed to equip the individual with skills necessary for control over his environment, the tentative answer to question two on page one is:

4. A greater proportion of internal inmates will participate in occupational education programs than will external inmates.

Review of Literature

Measurement of Construct

The most widely used method of measuring the internal-external control dimension as a psychological variable is the "I-E Control Scale" developed by Rotter, Seeman, and Liverant (1962). The I-E Scale is a forced-choice type measure offering alternatives between internal and external control interpretations of various events. The 23-item scale is designed to deal exclusively with the individual's belief about the nature of his environment, or his expectations about how reinforcement is controlled. The generalized expectancy that the scale purports to measure is assumed to be exclusive of the value the individual places on internal control, as none of the items is directly addressed to the preference for internal or external control (Rotter, 1966).

Rotter, et al. credit Phares (1955) and James (1957) with the original attempts at measuring individual differences in a generalized expectancy or belief in external control. Briefly, Phares (1955) found evidence that prediction of behavior within a task situation was possible, as his subjects with external attitudes behaved in a similar fashion as did all subjects when placed in a chance situation versus a skill situation (color and line-matching tasks). They showed lower rates of shifting in expectancies and more unusual shifts in expectancies than subjects who scored low in externality on his 13-item scale.

James (1957), using a Likert-type scale and a more lengthy revision of the Phares scale, also found that external subjects had smaller increments and decrements following success and failure, generalized less from one task to another, and recovered less following a period of extinction. As in the Phares study, they tended to produce more unusual shifts in expectancies. James also found a significant correlation between the James-Phares scale and the Incomplete Sentences Blank personal adjustment score (Rotter, 1954). The relationship was curvilinear, extreme internals and extreme externals appearing less adjusted.

Rotter, et al. (1962) attempted to broaden the James-Phares scale, with the objective of developing subscales for different areas such as achievement, affection, and social

and political attitudes; and to control for social desirability by the construction of a new forced-choice questionnaire (Rotter, 1966, Lefcourt, 1966). Beginning with a hundred forced-choice items and after a series of item analyses and factor analyses, the authors found that the subscales failed to generate separate predictions. By eliminating those items which either had a high correlation with the Marlowe-Crowne Social Desirability Scale, a proportional split so that one of the two alternatives was endorsed more than 85% of the time, nonsignificant relationship with other items, or a correlation approaching zero with validation criteria from studies by Seeman and Evans (1962) and Rotter, et al. (1961), the scale was reduced to the present 23 items (plus six filler items).

The importance of obtaining multi-method measurements in the determination of construct validity of personality tests has been stressed by Campbell and Fiske (1959). Correlations of the 23-item forced-choice I-E Scale with the James-Phares Likert-type scale have ranged in the neighborhood of .55 - .50. Data from two studies using nonquestionnaire approaches, one a projective story completion test (Adams-Weber, 1963) and the other a semistructured interview (Cardi, 1962), correlated significantly with scores obtained on the I-E Scale (Rotter, 1966). These approaches, plus other variations to be discussed in this review indicate that

the variable being studied is capable of reliable measurement by a variety of test methods. Briefly, the latter variations include the following: The Locus of Control Scale for children is an orally administered true-false scale (Bialer, 1961). The Childrens' Picture Test of Internal-External Control presents a series of cartoons about which a child states "what he would say" in the depicted life-like situations which involve attribution of responsibility (Battle & Rotter, 1963). The Intellectual Achievement Responsibility Questionnaire contains forced-choice items for children, pairing internal and external interpretations of achievement outcomes (Crandall, Katkovsky, & Crandall, 1965). The powerlessness and normlessness scales contain Likert-type scales derived from sociological studies of alienation (Dean, 1961).

The I-E Scale, along with biserial item correlations, is presented in Appendix Table 9. Internal consistency estimates, reliability coefficients, and correlations with a social desirability scale and intellectual measures are presented in Appendix Table 10. Data on samples of different populations are also summarized in Appendix Table 10. These summaries were reproduced from Rotter's (1966) presentation of test characteristics, and a detailed explanation may be found in Rotter's publication.

In sum, the I-E test shows reasonable homogeneity or internal consistency, particularly when one takes into account

that many of the items are sampling a broadly generalized characteristic over a number of specific or different situations. Relationships with such test variables as adjustment (Efram, 1963), social desirability or need for approval, and intelligence are low for the samples studied and indicate good discriminant validity. Finally, the construct of internal-external control seems measurable by a variety of scales, adding to the validity of the construct. Further evidence of construct validity is reviewed in the following section.

Construct Validity

The concept of internal-external control attempts to explain differences in individuals' beliefs in the locus of control over their environment. Thus, a logical kind of data to assess the construct validity of the internal-external control dimension involves the attempt of people to control their environment in important life situations. Included in this section are studies relating the construct to differential learning of information considered relevant to control over one's environment.

Seeman and Evans (1962) used a 60-item I-E scale to measure the sociological concept of powerlessness in relation to learning by hospital patients. Using 43 pairs of tuberculosis patients matched on socioeconomic backgrounds and health

histories, the authors demonstrated that the less alienated (less powerless) patients scored significantly higher on an objective test of knowledge about their current health conditions. Further, the less alienated patients were rated higher on ward behavior by hospital staff members, questioned doctors and nurses more, and expressed less satisfaction at the amount of information they received from the hospital personnel than did more alienated patients.

However, Seeman's results may be challenged on two fronts: first, the design did not allow for the introduction of "new" information to be learned. Therefore, the causal nature of the relationship between alienation and learning is debatable since poor knowledge could have resulted in high alienation, rather than vice-versa. Second, only one kind of knowledge was represented; hence, the question yet unanswered is whether the differences in knowledge due to alienation are generalizable to other kinds of knowledge or whether the tie is restricted to specific forms of information.

Gore and Rotter (1963) found that the I-E scale predicted the type and degree of behavior committed toward participation in civil right activities on the part of students enrolled in a southern Negro college. Students scoring lowest in externality signed statements indicating a willingness to take part in a march on the state capitol or to join a freedom

rider's group. More external students expressed no interest in participation or only minimal involvement. Strickland (1965) replicated the study with similar results, finding activists in a civil right movement more internal than non-participants.

The generality of the I-E test was tested by Phares (1965), who assigned two groups of college students differentially characterized as internal or external to act as "experimenters" with the task of inducing attitude changes in female college students. As predicted, internals Es were able to induce significantly more attitudinal change (toward campus issues) than were their external counterparts ($p<.03$). Further, the amount of change among those subjects influenced by externals Es was no different than that of a control group not exposed to an experimenter.

Neal and Seeman (1964) found that members of work-related organizations (i.e., union, business, or professional association) exhibit less powerlessness than those who are unorganized. The higher powerlessness of the unorganized worker was manifest in both manual and non-manual workers, and the differences remained after adjustment was made for differences in socioeconomic status of the workers. Seeman used a 16-item scale similar to the 23-item I-E scale discussed elsewhere in this review.

Seeman (1966) demonstrated that the organization membership-powerlessness relationship applies to more than one

culture and that the learning correlates of powerlessness could be jointly considered. Seeman interviewed a sample of the male work force in a city of Sweden. A 16-item information test was administered during an interview, as was a powerlessness scale (a version of the I-E Scale). For both manual and non-manual workers, those who were high in powerlessness scored significantly lower on an objective test of political knowledge. The relationship was sustained when controls for education, income and social class were applied.

An earlier attempt by Seeman (1963) to discover differences in ability to learn control relevant and non-control relevant factual material took place in a reformatory and is closely related to the present research. Seeman used three kinds of information, assumed to differ mainly in their "usefullness for managing ones own destiny," presented to 85 inmates averaging 21 years of age. This information related to (1) items bearing on successful achievement of parole; (2) the immediate reformatory situation; and (3) the inmate's longrange prospects for a criminal career. Seeman reported a significant correlation ($r = -.40$, $P. < .05$) in the predicted direction between scores on his 40-item alienation scale (measuring feelings of powerlessness) and scores on the 8-item test measuring knowledge of parole information presented for the first time to inmates just prior to the testing session. Seeman found no significant correlation between alienation and knowledge of the other two kinds of information.

Further, the learning scores for parole items and for "long-range" items correlated significantly ($P < .05$) with the inmates' achievement test scores. The latter also correlated significantly ($P < .05$) with the alienation scores.

At the first glance, Seeman's results seem to point to differences in learning among persons differentially characterized according to their feelings of powerlessness, but further inspection of his results make Seeman's study appear only minimally successful. In the first place, the non-parole information items were admitted by the author to be easier in content than were the parole items (Seeman, 1963, p.280). Mean scores on the knowledge tests showed higher scores on the parole items than the other kinds of material on the part of unalienated inmates, a fact possibly due to the greater difficulty of the parole items. Further, the nature of unalienated individuals might have made them more involved in the test-taking process, resulting in superior performance on the part of those individuals as compared to more alienated inmates. Secondly, Seeman reported very low correlations and no cell frequencies or resulting variations in the test scores, making his statistical results appear incomplete, or at best uninterpretable. It is difficult, for example, to determine whether the lack of correlation between alienation and long-range and reformatory knowledge represents a true lack of correlation or simply a lack of variation. Thirdly, although Seeman examined only inmates with a minimal I.Q. of

100 and nine years of completed formal schooling, it is possible that the obtained results reflect more differences in literacy than in alienation. The significant correlations obtained between achievement, alienation, and learning, plus the fact that Seeman's materials were written and administered in traditional test form, is further indication that those higher in achievement may have scored higher on the more difficult parole items.

A recent study by Seeman (1967) sought to further extend the work done in this country on alienation and learning. A sample of non-American university students in Sweden were examined on their knowledge of nuclear warfare, political awareness, and on cultural concerns. The former information was assumed to be more control relevant than the latter. Seeman found that the individual's level of alienation (powerlessness) correlated negatively and significantly with knowledge of more control relevant information, such as nuclear knowledge ($r = -.31$, $P. < .05$), and political awareness ($r = -.35$, $P. < .05$), but not with cultural information ($r = .17$) which was considered non-control relevant. Seeman's results are not unequivocal, however, since the "control relevancy" of the nuclear information is questionable. The test of knowledge in this area included certain kinds of information about nuclear bombs, such as their primary materials, their power, etc. The heavy technical nature of the test may have

left less distinction between internal and external individuals than between those acquainted with or interested in the subject matter itself.

This group of studies lends strong support to the hypothesis that a generalized expectancy that one can affect the environment through one's own behavior is present in at least two different cultures, can be reliably measured, and is predictive of logical behavior construct referents. Though a generalized expectancy is being measured in most of the studies, the behavior predicted by the construct may be specific to any number of attempts to control life conditions in specific areas (i.e., health, political knowledge, civil rights). The construct is demonstratively associated with differences in learning information related to control over such concerns.

Studies Relating to Achievement

Under the assumption that internals may show more striving for achievement than those who feel they have little control over their environment, a number of studies have employed the I-E Control Scale or a version of it to predict achievement by individuals of different ages. A review of such studies would seem appropriate in the present study.

Franklin (1963) studied a national stratified sample of 1000 high school students and reported 15 of 17 predicted

relationships of the I-E Scale to evidence of achievement motivation. These included early attempts to investigate colleges, intention to go on to college, amount of time spent doing homework, parent's interest in homework, and others.

Crandall, et al. (1962) developed an Intellectual Achievement Responsibility Scale (IAR) designed specifically for determining children's feelings of control over what happens to them in achievement situations. In their first investigation with the IAR, the authors compared responses on the instrument with four achievement-related activities. IAR Scores were significantly related to most criteria for males but not for females. Internal male subjects spent more time in intellectual free-play activities ($r = .70$, $P. < .05$), and demonstrated greater intensity of striving in intellectual free-play pursuits ($r = .66$, $P. < .05$). The boys also scored significantly higher on intelligence tests, on reading achievement tests, and arithmetic achievement tests. The two predictor variables most frequently used in past achievement research, n achievement and manifest anxiety, did not predict performance in any of four achievement situations studied.

A later study by Crandall, et al., (1965) described the IAR Scale in more detail and reported further evidence of its utility in predicting intellectual-achievement performance. The relationships between assignment of self responsibility and achievement varied according to sex, age and size of

family. McGhee and Crandall (1967) reported two separate studies using the IAR with subjects in grades ranging from elementary school through high school. The dependent variables were two measures of academic performance: course grades and achievement test scores. While prediction of girls' performance scores was equally consistent from beliefs in their own instrumentality for success and for failure, boys' performance scores were more consistently related to beliefs in responsibility for failure. In general, there was greater consistency of prediction across age levels for grades received than for achievement test scores.

Rotter and Mulry (1965) placed 120 male and female subjects in angle-matching tasks considered to be very difficult to accomplish. Half of the subjects were told that the task was difficult but that past experiences indicated that some people could accomplish it with ease. The other half were told that the task was so difficult that to accomplish it would be less due to skill than to sheer luck. The subjects were divided into internals and externals and assigned to both the skill and chance groups. The criterion measure was the amount of time for subjects to reach a decision in finding a standard with which to judge a sample angle, with the subject being unaware of his being timed. A significant interaction suggested that internals took longer to decide on a matching standard under skill conditions than did externals but took a

shorter time under chance conditions than did externals. Further, the difference in time between chance and skill conditions for internals was significant, whereas the difference was not significant for externals. The researchers pointed to the greater involvement by internals under skill conditions and to the apparent tendency for internals to value reinforcements for skill more than chance. Their results indicated that externals do not exhibit such an involvement in or preference for skill tasks.

In the nation-wide survey of achievement in racially mixed classrooms by Coleman (1966), three expressions of student attitude were measured: interest in school work, self concept as regards ability, and sense of control of own fate. Of all the variables that were evaluated, including eight features of family background taken together, and a much greater number of objective school characteristics taken together, these attitudes showed the strongest relation to performance at all grade levels studied. For Negroes, perception of fate control was clearly the most important of the three attitudes. (To assess it, students were asked to respond to three statements that "good luck is more important than hard work for success," that "every time I try to get ahead something or somebody stops me," and that "people like me don't have much of a chance to be successful in life."). With or without family background characteristics partialed

out, sense of fate control accounted for about three times as much variance in the test scores of Negroes as of whites at the higher grade levels, both in the North and South. White proficiency was more closely related to self concept than to control of environment. In the words of the Coleman report, "it appears that children from advantaged groups assume that the environment will respond if they are able to affect it; children from disadvantaged groups do not make this assumption, but in many cases assume that nothing they will do can affect the environment - it will give benefits or withhold them but not as a consequence of their own action" (p. 321). The crucial role of this factor in determining level of performance is suggested by the findings that Negro pupils who answered "hard work" scored higher on a test of verbal ability than did white pupils who chose the "good luck" response. Only a small fraction of the variance in fate control was accounted for by family background factors, and almost none of it by objective school characteristics. However, one variable was consistently related both to this attitude and to self concept. As the proportion of white in the school increased, the Negro child's sense of internal control increased but his self concept declined. It would appear that in integrated classrooms minority group children were less confident of their ability to compete, but were more aware of opportunity (Katz, 1967).

Summary

The brief review of studies related to the internal-external control construct represent a consistent set of findings. The findings stem from both laboratory and field studies, and sometimes represent different methods of measurement of the construct.

The research reported here lends support to the notion that people develop generalized expectancies in regard to whether or not reinforcement, reward, or success in these situations is dependent upon their own behavior or is controlled by external forces, particularly luck, chance, or experimental control. Moreover, this kind of trait has been observed in at least two cultures, and is predictive of behavior in both. Differences in viewing behavior reinforcement contingencies can be measured in children as well as adults by different methods with reasonably high intercorrelations between different methods of measurement.

Psychometric indices have been summarized on the most frequently used scale for measuring internal-external control. The 23-item I-E control scale exhibits reasonably high internal consistency for an additive scale, satisfactory test-retest reliability, and significant correlations with other measures of the construct. Low relationships with such variables as

intelligence and social desirability add to the discriminant validity of the scale. Obtained differences in externality between known groups is a further indicator of validity of the I-E Scale.

Construct validity of the I-E control scale is enhanced by predicted differences in behavior for individuals differentially characterized by the scale, or from correlations with behavior criteria. The studies reported here lend credence to the notion that the internal individual will place greater value on skill behavior, be more active in improving his life conditions, and learn the kind of information requisite to achieving mastery over his environment (Rotter, 1966).

These findings provide strong support for the intent of the present investigation and help form the theoretical perspective and hypotheses which guide this study.

Significance of Study

The significance of this investigation lies not only in its potential contributions to general theoretical formulations undergirding the construct of internal-external control, particularly in reference to learning, but also in its practical aim of helping explain low rates of participation in occupational educational programs. Although no claim is made for widespread generalizability to other populations, further explanations of the psychological concomitants of

participation may add in a small way to the existing literature, which tends to emphasize demographic characteristics (age, sex, race) or social backgrounds of those who exhibit different rates of participation.

From a methodological standpoint, the findings of this study should prove valuable insofar as the instrumentation used to determine conditions of internal-external control proves reliable and valid in the population in question. Due to the apparent generality of the concept of internal-external control and its versatility in predicting various kinds of performance in achievement-related situations, the instrumentation or modifications thereof may prove useful in future research dealing with such problems as the prediction of achievement, dropout rates, and other kinds of performance in programs of adult education. To this end, provisions for the development of appropriate psychometric indices (e.g., validity, reliability) will be stressed in this initial investigation.

METHODOLOGY

Population and Sample

A sample of 216 inmates from a correctional institution in North Carolina provided the subjects for this study. The inmates were adults, ranging in ages from 18 to 65. Their reasons for incarceration represented a variety of criminal acts, but all were felons.

Operational Definition and Measurement of Variables

The dependent variable, learning of new information, refers to the subject's (Ss) retention of items of information relating to parole concerns. The selection of this kind of information was based on the assumption that to achieve parole from prison is a valued goal of inmates, an assumption consistent with the "goal" element of the theory undergirding this investigation. Retention was measured by the number of items marked correctly (out of possible 20) on a multiple-choice test administered to the subjects after a list of the same items were reacted to by the Ss.[1/]

The items of information were taken from a suggested list of 38 items furnished by the N. C. Department of Corrections Parole Division. Final selection of the 20 items in the form included in this study was made after two tryouts with the test and after completing an item analysis on the

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[1/] These items are listed in Appendix B.

original items. The purpose of the latter was to determine those items which discriminated between high and low scores on the total test.

Another dependent variable, participation in occupational education, refers to regular enrollment in classes offering training in vocationally-oriented subjects.[2] These activities were limited to those not required (on a voluntary basis only) of inmates, and for purposes of this study included only those available to the inmates during the six-month period immediately preceeding the date of the experiment. Participants and nonparticipants were distinguished on the basis of entries on personal records maintained at the institution.

Internal-external control of reinforcement refers to an attribute of the individual by which he can be described as possessing a generalized expectancy of control or lack of control over his environment. The construct is measured by the subject's response to statements contained in the I-E Control Scale described in an earlier section of this proposal.[3] A low score indicates an internal attitude, while a high score indicates an external attitude. The score is determined by calculating the number of choices of statements

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[2] Vocationally-oriented subjects include brick masonry, typing, high school refresher courses, cooking and baking, and small gas engine repair.

[3] The scale items, along with the psychometric properties of the scale, are listed in Appendix A.

which reflect a feeling of lack of control over one's environment (externality).

Certain changes were made in the original I-E Scale before its use in the present research. The latest version of the scale as described by Rotter (1966) is essentially a pencil and paper test administered to persons capable of reading and interpreting the meaning of the 23 statements and their alternatives. Persons taking the test are furnished written instructions along with the list of statements on which they make their choices of alternate items, either internal or external in nature. The changes in the instrument made in the present research involved converting the statements into a form easily understood by persons unable to read, or at best very poor readers. Thus, the scale items were reworded to the extent of reducing the word difficulty level, and the modified items recorded on tape. The intent of the taping was not only to provide nonreaders with a chance to hear the items read, but to standardize the method of presentation as much as possible across different groups of respondents. Adults taking the "test" are furnished oral instructions and examples at the beginning of the tape, and respond to the scale items by marking a simplified answer sheet adapted to the audio presentation.[4/] It should be

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[4/] A list of the items appearing on the tape and a sample answer sheet are provided in Appendix C.

noted that, since the present study is a part of a larger research project, the I-E Scale and its 23-items were incorporated into a larger number of items (129) which describe two additional psychological inventories.[5/] The items were distributed at random throughout the total number of taped items.

Psychometric indices of the original I-E Scale have been summarized in this study. However, with a modified form of the original scale, the researcher conducted a test of reliability to support further use of the instrument. In order to obtain reliability estimates, the taped I-E Scale was administered to 78 MDTA trainees enrolled in adult basic education classes. The individuals in these class were of the approximate level of literacy as the subjects included in the present experiment.

A measure of internal consistency reliability of the scale was obtained by computing a split-half reliability coefficient, corrected by the Spearman-Brown formula for a score based on the whole test. The coefficient obtained was .64, which compares favorably with coefficients obtained on similar tests of the original scale as reported by Rotter (1966).

5/The two instruments are Cattell's 16PF Questionnaire and Srole's Anomia Scale.

Test-retest reliability was based on the scores of 58 individuals out of the original 78 to whom the retest was administered approximately two weeks after the original test (20 persons did not take the retest due to closure of one of the classes involved). The obtained coefficient for the test-retest estimate of reliability was .76, which also compares favorably with values obtained by other users of the I-E Scale, who reported coefficients ranging from .49 to .83 over varying intervals of time.

The construct validity of the I-E Scale is illustrated in the related studies reported in this prospectus, especially those that describe the attempts of people to better their life conditions, or to control their environment in important life situations (Seeman, 1967; Neal and Seeman, 1964; Rotter, 1966). Further, the results of other test administrations as appended in this study illustrate expected differences between known groups. Discriminant validity is also summarized in Appendix A. To add additional support to these test data, the researcher found that mean scores on trial runs of the scale administration agreed with scores obtained by users of the original I-E Scale.

The concomitant variables intelligence, achievement level, and age were introduced into the design. These data were taken from the inmate's personal files maintained at his institution. The scores were from tests administered by prison officials as a part of their standard testing program.

The I.Q. scores represent performance on the Revised Beta I.Q. Test and achievement scores were from the Wide Range Achievement Test.

Design

This experiment was couched in a 2 x 3 factorial design with 36 observations per cell. The design employed three levels of a ranked qualitative classification factor and two levels of a treatment factor, viz.:

Factor A. Treatment - - 2 levels

A_1 Control relevant information

A_2 Non-control relevant information

Factor B. Classification - - 3 levels

B_1 Low externals

B_2 Medium externals

B_3 High externals

The above is for test of Hypotheses 1-3. For Hypothesis 4, concerned with differences in participation in occupational education programs, the inmates were classified as participants and nonparticipants, these subdivisions cutting across the three classification levels of low, medium, and high externality. The six cells so formed were entered with enumeration data in a 2 x 3 contingency table.

Classification of Subjects

Tested in groups of 20, Ss were classified on the basis of scores obtained in response to the taped I-E Scale. In

the administration of the I-E Scale, the experimenter introduced himself to all the groups as being from North Carolina State University. The general introduction given to the groups was as follows:

> You are here today to participate in a survey conducted by North Carolina State University. The information that you will give us is to be used for research purposes. We will not identify the information that you give us with your name, nor will your responses to the survey become a part of your personnel records. You will not be graded in any way, as all the information that we will collect will be mixed together with other groups like yourself. Therefore, please answer our survey according to the way you feel, not the way you think we would like to hear it. We are depending on your answers, and we very much appreciate your help to us in this important piece of research.
>
> We want you to listen to a tape and follow the instructions as you hear them. Let us know if you cannot hear the tape recording clearly.

The content of the tape, including the instructions and the answer sheet, is in Appendix C.

All Ss received the same orientation and instructions by the same experimenter. However, two groups were tested simultaneously, necessitating the presence of an additional person to remain in each room with the Ss. Although these people were teachers who were already familiar with the Ss, they did not engage in the actual administration of the instruments or intervene with the operation of the experiment. Their task was limited to being present in case of interruption of the test.

The overall group of Ss was classified into three subgroups representing low (scores 0-6), medium (scores 7-9), and high (scores 10-16) degrees of externality. Division of scores into three groups was accomplished in order to increase visibility of the potential effect of internal-external control on retention. After being classified into low, medium and high externality, Ss were numbered and assigned randomly to the treatments.

Treatment

A central concern of this study is how internals differ from externals in their ability to learn control relevant versus non-control relevant information. Thus, the treatment consisted of manipulating the perceived relevancy of parole information to the prison inmate's chances of achieving parole. Control relevant information was that parole information which, if learned, would be useful to the inmate in his quest for parole. Non-control relevant information was that parole information which, even if learned, would not be relevant to the inmate's chances of obtaining parole.

The manipulation of the control relevancy of the parole information was accomplished by varying the time dimension in which the parole information applied. Treatment A_1 consisted of items of information that apply today, while Treatment A_2 consisted of items that applied approximately 20 years ago. This differentiation was based on the assumption that items of parole information that apply today (A_1) would seem to the

inmate to be relevant to his current concerns for parole, while information applying approximately 20 years ago (B_2) would appear irrelevant to an inmate's present-day chances of obtaining parole. The items were otherwise identical to avoid possible differences in retention due to differences in content or in the difficulty of the two types of information.

To vary the time in which the items applied, the introductions to the two sets of information each specified a different time dimension. Further, each item in each set was prefaced by a date to indicate the time in which it applied. The differences in the two sets of information (treatments) may best be illustrated by the following.

For Treatment A_1, or control relevant information, the following introduction was given:

> We are interested in putting together some information on the North Carolina prison system as it exists today, in 1968. However, we need your help in deciding which facts to include and which facts to leave out.
>
> I am going to read to you serval statements of facts about the North Carolina prison system as it operates today.

An example item for Treatment A_1 is:

> Item No 7: Today, a major factor that helps inmates get paroled is an active interest by the inmate's family.

The remainder of the introduction, instructions, and items are presented in Appendix B.

Treatment A_2, or non-control relevant information, had instructions identical to A_1 except for the introduction,

which said:

> We are interested in putting together some information on the North Carolina prison system as it developed throughout the years. However, we need your help in deciding which facts to include and which facts to leave out.
>
> I am going to read to you several statements of facts about the North Carolina prison system as it developed over the years, beginning in 1940 or nearly 30 years ago.

For Treatment A_2, an example non-control relevant item read:

> Item No. 7: In 1945, a major factor that helped inmates get paroled was an active interest in the inmate's family.

After the introduction, the Ss were asked to listen to the items of information and indicate how interesting the information was to them. Ss were furnished with an answer sheet with a column of blank lines headed "Interesting" and a column headed "Not interesting." Ss marked one of these two choices after hearing an item read on the tape. The reason for requesting this task was to help insure that Ss listened to each item.

Retention Test

After Ss had heard each item read twice, they were told:

> Next, we need to know how well the facts are remembered after a person has once read or heard them. You have had a chance to hear the statements, so we would like for you to respond to some questions about the statements.

Ss were given an answer sheet offering alternative answers to questions in a multiple-choice format. Instructions for completing the answer sheet were included on the tape, as described in Appendix B.

Ss were at all times reminded that the tasks before them were not tests whose scores were to be entered on their personal records.

Analysis of Data

The data were analyzed by the analysis of variance, analysis of covariance, chi-square, correlational statistics, and by orthogonal comparisons. In the test of null hypothesis I,[6] the key out of the analysis of variance is:

Source of Variation	Df.
Total	215
Treatment (A)	1
Externality (B)	2
A x B	2
Error	210

The hypothesis was tested against the experimental error term. The test statistic was the F value, and the critical region was the theoretical value of F with indicated degrees of freedom at the .05 level of significance.

For hypotheses 2 and 3, independent comparisons among means were made by application of orthogonal comparisons, where each comparison was based on a single degree of freedom (Cochran and Cox, 1957; Steel and Torrie, 1960). Each of the separate comparisons were tested individually by experimental

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[6] The numbers of the hypotheses correspond to those enumerated on pages 18-20 and pages 50-60.

error. The test statistic was the F value at the .05 level of significance. The key-outs for orthogonal comparisons are presented in Appendix Tables 15-16.

For hypothesis 4, enumeration data reflecting the proportion of inmates participating in occupational education were entered in a 2 x 3 contingency table, with inmates further classified according to low, medium or high externality. The test statistic was chi-square, and the critical region was the theoretical value of chi-square for 2 d.f. at the .05 level of significance.

To increase the precision of Hypotheses 1-3, analysis of covariance was used to adjust the retention score means for the concomitant variables of intelligence, achievement level, and age of inmates. As a further support for these and other computations, simple and multiple correlations were computed for relationships among the variables intelligence, achievement, age, retention, and externality.

RESULTS

The data are presented in three parts: by tests of the retention hypotheses one through three, tests of hypothesis four concerning participation in occupational education, and tests of reliability of the instruments used in the study. Data are analyzed by analysis of variance, analysis of covariance, and by chi-square. Additional interpretation is afforded by correlation statistics where applicable.

Retention

The first null hypothesis relating to retention is: There is no interaction between externality and control relevancy. Analysis of variance was used in the test of this hypothesis. Mean retention scores are summarized in Table 1, with the analysis of variance in Table 2. Means, standard deviations, and distributions of retention scores and I-E scores are presented in Appendix Tables 12-14.

Table 1. Means for retention scores by control relevancy and externality

Externality	Control Relevancy		
	Control Relevant	Non-control Relevant	Total Mean
Low	14.69	12.39	13.54
Medium	11.06	10.06	10.56
High	8.36	8.64	8.64
Total Mean	11.37	10.45	10.91

Table 2. Analysis of variance of retention scores

Source of Variation	Sum of Squares	df	Mean Square	F
Treatments	(998.29)	(5)		
Control Relevancy	45.37	1	45.37	3.29[c]
Externality	879.06	2	439.53	31.84[a]
Interaction	73.86	2	36.93	2.68[c]
Error	2899.03	210	13.80	
Total	3897.33	215		

[a] $p < .001$

[c] $p < .07$

Hypothesis one is accepted. However, with the interaction F approaching significance, a closer inspection of the data was made by making orthogonal comparisons among the treatment totals. These results are summarized in Tables 3 and 4. More detailed results can be found in Appendix Tables 15 and 16.

Two sets of orthogonal contrasts were made to obtain the results summarized in Tables 3 and 4. In each case, the treatment sum of squares with five degrees of freedom was broken down into five separate contrasts, each with one degree of freedom.

Table 3 reveals a significant main effect for externality (B), with the sum of squares for B_L representing a significant slope of B when added over both levels of control relevancy (A). However, the linear response to B is not parallel over both

Table 3. Summary of orthogonal comparison sums of squares tests of main effects and interaction

Source[1]	df	MS	F
A	1	45.37[c]	3.29
B_L	1	865.34[a]	62.71
B_D	1	13.48	.98
A B_L	1	73.67[b]	5.34
A B_D	1	.02	.01
Error	210	13.80	

$a_p < .001$
$b_p < .02$
$c_p < .07$

[1]A = Control Relevancy
B = Externality

Subscript L = Linear Response
Subscript D = Quadratic Response

Table 4. Summary of orthogonal comparison sums of squares tests of simple effects

Source[1]	df	MS	F
A	1	45.37[c]	3.29
A_1 B_L	1	722.00[a]	52.32
A_1 B_D	1	5.35	.39
A_2 B_L	1	217.00[a]	15.72
A_2 B_D	1	8.56	.62
Error	210	13.80	

$a_p < .001$
$c_p < .07$

[1]A_1 = Control Relevant
A_2 = Non-Control Relevant

levels of A, as indicated by the significant MS for A B_L, or A times (B linear) interaction. The interaction result indicates a failure of the simple linear effects for each level of A to be alike, or that the slopes of the response curves for each level are not parallel.

Due to a significant A B_L, it is necessary to secure the linear effect of B for each level of A. Table 4 reveals a significant linear effect of B at each level of A, indicated by the significant MS for A_1 B_L and A_2 B_L. However, although the response slopes for both A_1 and A_2 are significant, they are not parallel, as shown in the results of Table 3 for the A B_L component. In both tables, the quadratic effects are not significant, indicating that the increase in retention scores between successive levels of B (from high to low externality) is constant within random variation of the order of experimental error.

The results in Table 4 also may be used to test hypotheses two and three. Null hypothesis two is: <u>There are no differences among low, medium, and high externals in amount of control relevant information retained.</u> The significant MS for A_1B_L and the constancy of the increase in retention scores (see Table 1) as indicated by the non-significant quadratic effect (B_D) are grounds for rejection of this hypothesis. There is a significant increase in retention scores with decreasing levels of externality. Null hypothesis three is: <u>There are no differences among low, medium and high externals</u>

in amount of non-control relevant information retained. This hypothesis is rejected, based on the significant MS for $A_2 B_L$ reported in Table 4. There is an increase in retention scores with decreasing levels of externality for non-control relevant information, although this increase is not as great as for control relevant information.

To increase the precision of hypotheses one, two and three, analysis of covariance was used to adjust the retention score means for the concomitant variables of intelligence, achievement level, and age of inmates. For example, the retention score means adjusted for intelligence are estimates of what the observations would be if all Ss had the same I.Q. score. The retention score means adjusted for I.Q., achievement, and age are presented in Table 5, followed by a summary of covariance results for various combinations of these covariates (Table 6). Table 7 summarizes in more detail the analysis of covariance for the three covariates combined. Appendix Table 12 presents means and standard deviation for achievement scores, I.Q., and age.

The introduction of the three covariates, both singularly and in combination, modified the original results. Their influence may best be illustrated in the reduction of error as summarized in Table 6. By using covariance on the retention scores of each variate separately, achievement made the greatest reduction in error (13.80 to 9.77). When two variates were used, achievement and age resulted in the greatest

Table 5. Adjusted retention score means

Externality	Control Relevancy		
	Control Relevant	Non-Control Relevant	Total Mean
Low	13.05	11.98	12.52
Medium	11.01	10.39	10.70
High	9.41	9.64	9.52
Total Mean	11.16	10.67	10.91

reduction (13.80 to 9.36). The original unadjusted error of 13.80 was reduced to 9.33 by covariance using all three variates.

The most significant influence of using covariance analysis is in the reduction of interaction effect. This result may best be illustrated by plotting the adjusted and unadjusted mean retention scores as in Figures 1 and 2.

The net effect of adjustment may be seen in the change of the original non-parallel response curves for unadjusted retention means (Figure 1) to parallel lines for adjusted means (Figure 2). This is due to a reduction in the slope of the line and a reduction in the difference in retention means at the low, medium and high levels of externality.

In addition to examining reductions in error mean squares for retention, a further analysis may be made by computing correlations associated with the reductions. The associated

Table 6. Summary of mean squares for unadjusted retention scores and scores adjusted for combinations of covariates

Source of Variation	Mean Squares							
	Unadjusted	Achievement	I.Q.	Age	Achievement		I.Q.	Achievement
					I.Q.	Age	Age	I.Q. Age
Regression	_____	856.69[a]	406.58[a]	175.33[a]	437.10[a]	476.32[a]	270.05[a]	322.69[a]
Control Relevancy	45.36[a]	22.03	38.71[c]	24.56	22.71	11.96	21.97	10.47
Externality	439.53[a]	147.19[a]	225.69[a]	441.52[a]	134.07[a]	152.56[a]	227.77[a]	133.59[a]
Interaction	36.93[c]	10.46	12.01	34.07[c]	8.02	10.12	10.53	8.54
Error	13.80	9.77	11.93	13.03	9.73	9.36	11.34	9.33

[a] $p < .001$

[c] $p < .07$

Table 7. Analysis of covariance of retention scores adjusted for achievement, I.Q. and age

Source of Variation	Sum of Squares	df	Mean Squares	F
Regression	968.10	3	322.82	34.16[a]
Treatments	(294.73)	(5)		
Control Rel.	10.47	1	10.47	1.12
Externality	267.18	2	133.59	14.31[a]
Interaction	17.08	2	8.54	.92
Error	1930.94	207	9.33	
Treatments plus Error	2225.67	212		

[a] $p < .001$

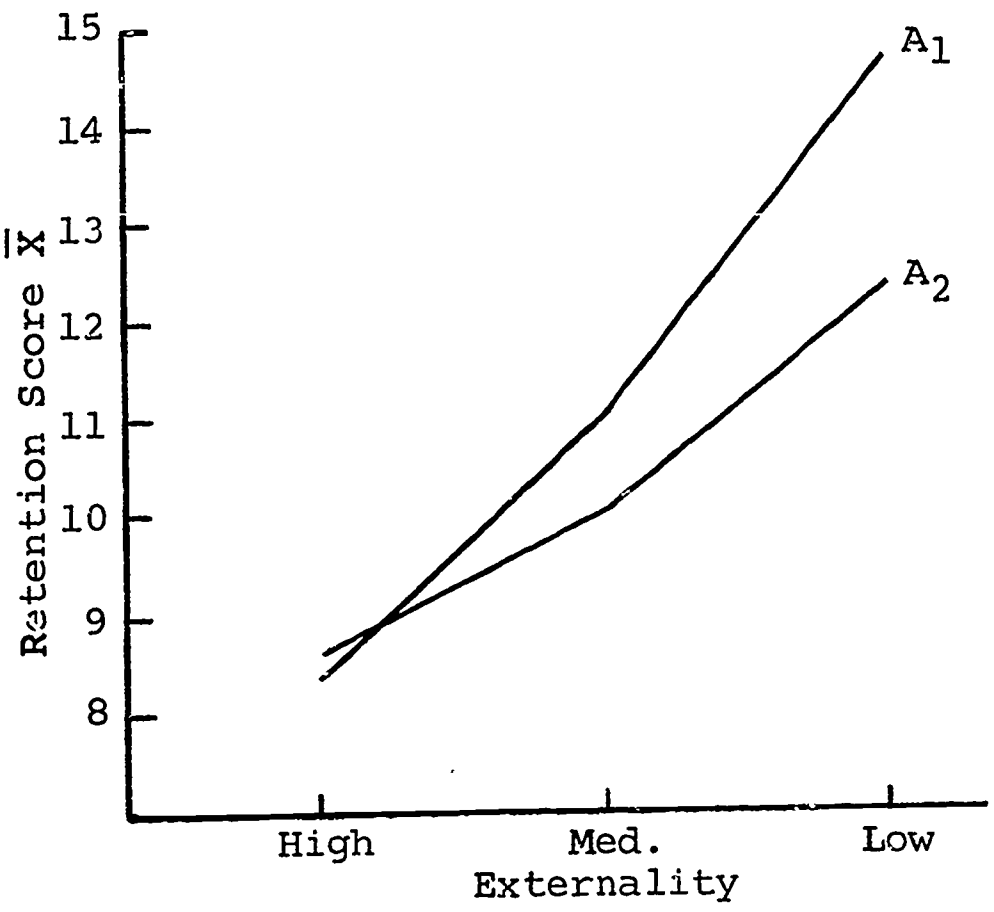

Figure 1. Response curves for unadjusted retention means

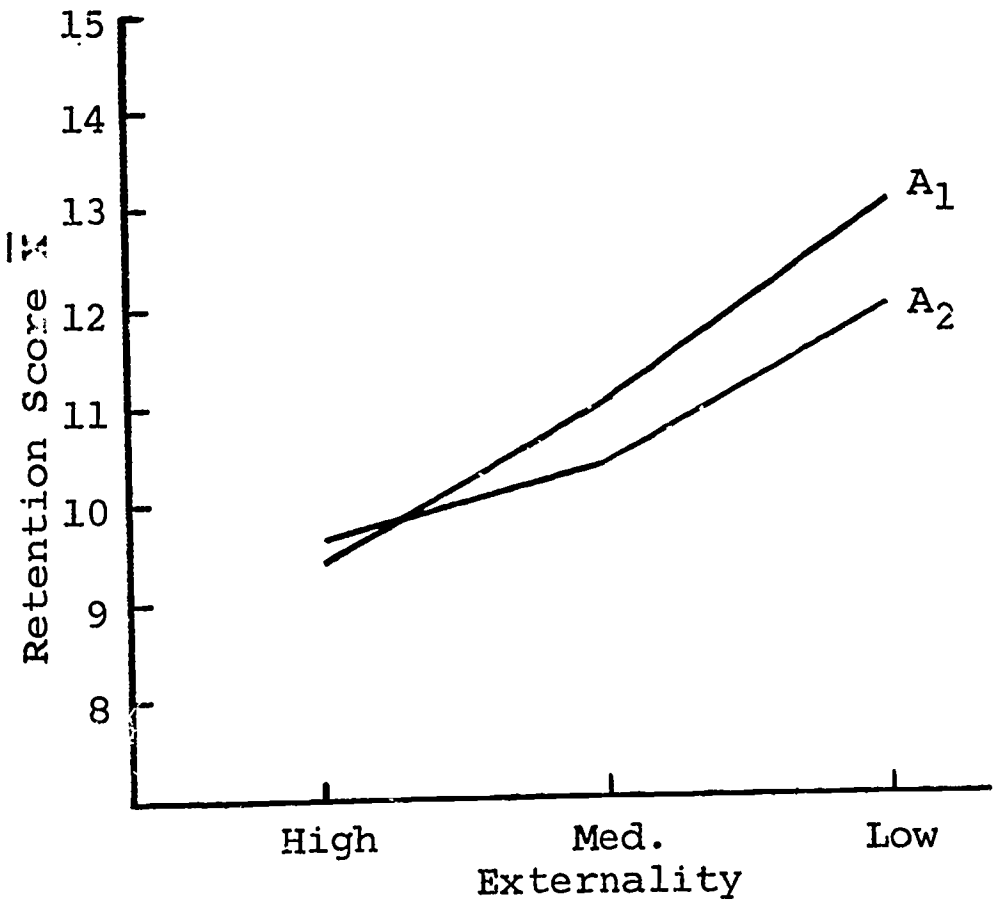

Figure 2. Response curves for adjusted retention means

correlation by using achievement alone as a covariate is .54; for I.Q., r = .37; and for age, r = -.25. The R for achievement and age together is .67, and for achievement, age and I.Q., R = .69. The correlation for the latter combination of covariates (which reduced the error MS from 13.80 to 9.33) may be interpreted as meaning that 48 per cent of the retention scores are explained by these three variables. Further, these variables are characteristics of the Ss before they participated in the experimental situation, and consequently could have correlated as much with their performance on the retention test irrespective of the classification factors assigned during the experiment.

Participation

After classifying inmates of a correctional institution into low, medium and high externals, the groups were further classified according to whether their members were participators or non-participators in occupational education programs established on a voluntary basis and available to all inmates. The total number of inmates (169) is less than the N for the experimental design, since the criterion for participation versus non-participation was that it be on a voluntary basis. Forty-seven inmates were participating in a mandatory remedial education program which precluded their participation in voluntary occupational education programs.

The results were arranged in a 2 x 3 contingency table and the analysis carried out by a X^2 test suggested by Brandt

and Snedecor (1956). The null hypothesis (four) to be tested is: There is no difference in the proportion of internals and externals participating in occupational education. Table 8 summarizes the results.

Table 8. Number of inmates participating and not participating in occupational education programs by participation and degree of externality

Participation	Externality			
	Low	Medium	High	Total
Participators	38	29	17	84
Non-participators	26	25	34	85
Total	64	54	51	169
Total Proportion Participating	.5939	.5370	.3333	.4970

$X^2 = 8.24$, $P < .02$

The data indicate that a higher proportion of low external inmates participate than do medium or high externals with participation decreasing as externality increases. The significant X^2 of 8.24 with two degrees of freedom gives reason to reject the null hypothesis four, and to say that participation is not independent of externality.

Reliability

Two instruments were used in this study, a test of retention and the I-E Scale. An examination of the psychometric

properties of these instruments should provide another check on the credibility of the results obtained and reported in this chapter.

In addition to the reliability and validity indices summarized in Appendix Table 10 for the I-E Scale as used in other studies, further computations of the internal consistency reliability of the two instruments were made using the present data. The method used was Hoyt's Analysis of Variance Procedure (Thorndike, 1959, p. 93) for estimating test reliability from consistency of individual performance on the items of a test. This procedure assumes that the score of an individual on a test may be divided into sources of variation due to the individual, the item, and an error component. The analyses of variance for the retention test results and I-E scores are presented in Appendix Tables 18 and 19, respectively.

The estimate of reliability for the retention test is .79 and for the I-E Scale is .71. These coefficients compare favorably with reliability estimates for similar inventories, and are considered acceptable for purposes of this study.

Summary

Data have been presented for an experiment designed to determine the effect of internal-external control on retention of information and on the association of the control construct with an inmate's participation in occupational education. The results have supported the following alternate hypotheses, as

stated on pages 18-21 of this study:

H_2 Internals will learn more control relevant information than will externals

H_4 A greater proportion of internal inmates will participate in occupational education programs than will external inmates.

Two of the hypotheses were not supported. They are:

H_1 Internal individuals and external individuals differ in the amount of information learned, depending on their perception of the relevancy of the information to control over their environment.

H_3 Internals and externals learn non-control relevant information equally as well.

DISCUSSION, CONCLUSIONS, AND SUMMARY

That participation by prison inmates in occupational education is associated with the degree of externality they exhibit is supported by this research. Supported also is the assumption that internal subjects retain more information than external subjects. However, that this difference depends on the perceived relevancy of such information to control is not evident from the data. The failure to find support for the latter merits explanation, and such reasons for the findings as are to be discussed herein fall into two camps; in terms of the theorized relationships among the variables selected for study and in terms of the methodology used to explore these relationships.

On the theory side, it is worthwhile to repeat the model proposed to serve as the nucleus of a theoretical explanation of relationships among the variables selected for study (p. 38). The model,

$$BP_{x,s_1,R_a} = (GE \times CR_{B_x} \times RV_a) ,$$

purports that the potential for an individual's behavior x to occur in situation 1, directed toward a potential reinforcement a, is a multiplicative function of a generalized expectancy of control over the environment, the perceived control relevancy of behavior x, and the value of the reinforcement.

The "control relevancy" component of the model has received the least support from the data. It was reasoned that, although persons may be characterized as possessing a generalized expectancy of control or lack of control, its manifestations would not be evident in everything the individual does but rather would depend upon his perception of the relevancy of his behavior to control over his environment.

The hypothesis that internals would retain more control relevant information than externals was supported by the data. Further, the difference in retention score means was greater for this group than the difference between internals and externals in their retention of non-control relevant information (Table 5 and Figure 1). This is a trend which would lend support to the theorized influence of the control relevancy variable. However, the difference between the means for non-control relevant information, though smaller than the other difference, was statistically significant. Thus, internals retained more of both kinds of information than did externals. The effect of a generalized expectancy for control on learning was therefore supported by the data, as is further evidenced by the obtained significant main effect for externality. However, that its effect depends on the perceived relevancy of the individual's behavior to control over his environment was not supported.

Correlational statistics served as checks of the possible explanation of these results by heretofore unseen relationships among the variables of intelligence, achievement, age and externality. Those reported in the result chapter revealed that 48 percent of the retention scores were explained by the three covariates taken together, with achievement alone explaining nearly 30 percent and I.Q. alone having 14 percent common element with retention scores. Further, the correlation between I-E and achievement was $-.40 (P < .01)$, and between intelligence and I-E, $-.37 (P < .01)$[1/] What these results suggest is that a close tie exists between a person's capacity, his achievement, and his willingness to retain information. Moveover, a similar tie exists between these variables and the degree of externality he exhibits.

The influence of the achievement variable is seen in its reduction of the error term in the analysis of covariance, its correlation with retention, and its correlation with scores on the internal-external control scale. Its influence is greater than that of intelligence or age taken alone. Therefore, an inmate's capacity (I.Q.) and exposure (age) are apparently not as crucial as his ability in reading and computational skills, as measured by the achievement test by which achievement level was determined. Moreover, as achievement level is generally proportional to amount of education

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[1/] See Appendix Table 17 for a summary of all simple correlations.

completed (though usually lower), the inmate's score may be indirectly related to his persistence in formal schooling. This would be expected of internals, or those who believe that personal control over their outcome is possible. Additionally, internals may have been more involved in the test-taking process or possessed more positive test-taking attitudes which manifest themselves in superior retention of both kinds of information.

The findings discussed above are in accord with findings of related research, with the possible exception of those relating to the intelligence variable. Seeman, in his reformatory study, found achievement significantly related to both retention of information (parole and non-parole) and to his measure of alienation in terms of powerlessness. However, he failed to find a significant relationship between intelligence and the two criterion variables. In this respect, the present research has both confirmed and added to Seeman's findings by discovering the relationships enumerated above.

In his hospital study, Seeman (1962) found a low but significant correlation ($r = -.31$) between powerlessness and knowledge, a correlation which indicates that only 9.6 percent of the variance in knowledge is accounted for by feelings of powerlessness. Although Seeman did match his subjects on educational background, it is obvious that other variables would need to be included in seeking to predict an individual's level of knowledge from a powerlessness scale. Some of these

may include those systematically excluded by Seeman by virture of his matching process, not the least of which are achievement and intelligence.

Similar indicators of independence of I.Q. and externality have been obtained in studies among male and female college students and male prisoners (Appendix Table 2). However, a possible agreement exists between this study and that of Crandall, et al. (1962) who found a relationship between externality and I.Q., with externality measured with a different scale (IAR) and with children. Conflicting results in the literature lend no consistency to the actual relationship between externality and intelligence.

The results may be examined from a methodological viewpoint, as errors in the procedures followed could have contributed to the findings being discussed. One possibility is that the treatments were not effective enough to produce visible differences. As reported earlier, no significant main effect was present for the "control relevancy" factor, after adjustment of the treatment means. Thus, one would suspect a failure to manipulate successfully the subject's perception of the relevancy of the information presented. If true, this failure could be attributed to a number of factors, among which are the following:

1. The time dimension may not have been effective. That is, the items intended to be non-control relevant ("history" items) should have been perceived

as being so far removed from current interests that they appear non-significant to both externals and internals; hence, no difference in retention should have resulted. It is possible that the dates attached to the "history" items did not alter their form enough to increase visibility.

2. The non-control items may have been interesting in and of themselves, resulting in greater involvement in the test for the non-control relevant information than expected. That is, the historical nature of the items could arouse the curosity of those inmates interested in their environment and alert to almost all stimuli that relate to their internment. For example, the "history" items may have offered an interesting contrast between "what used to be" and the current parole system. This could be especially true on the part of internal inmates, as they are assumed to be more alert to their environment than externals. Internal subjects' increased attention to the testing situation for the non-control items could account for the unexpected high scores obtained by that group.

3. Internal inmates may have been more anxious to present a favorable image of themselves by scoring high on either test, therefore ignoring the actual relevancy of the items and being more concerned with their resultant scores than in the nature of the test.

4. The control relevant ("current") items may not have been as related to control as intended. That is, they could have been perceived as nearly non-control relevant as the

"history" items. If this be the case, the "current" items were not as uniquely related to control over the inmate's outcomes as they should have been.

5. Conversly, it is possible that all information relating to parole may be considered control relevant by internal inmates. This is a weakness attributed to the Seeman reformatory study, in that his "non-control" items actually contained information that related to the reformatory situation ("reformatory knowledge"). Further, his alienation-reformatory knowledge correlation was second in magnitude only to that for parole information. Seeman's design allowed for different kinds of information, but there is no assurance that the "non-control" items did not seem relevant to some of the inmates. In short, in both Seeman's research and the present investigation, it may be argued that several kinds of information that relate to the reformatory situation demand the attention and subsequent acquisition on the part of inmates who are the most active in seeking means to control their environment.

In summary, two primary reasons for failure to obtain the expected results may be set forth. First, the influence of differences in intelligence, age and achievement (especially the latter) seems to be prominent in deciding the results. Second, the possibility exists that the assumed differences in the treatments "control relevant versus non-control relevant" were not powerful enough; i.e., the two treatments were

too similar in meaning. These two factors in combination could mean that internals, who are high achievers and more intelligent than externals, learn both kinds of information almost equally as well.

Conclusions

The personality variable internal-external control has been demonstrated to affect the learning of information relating to parole by inmates and to be associated with their participation in occupational education. A major implication of this finding is that the I-E construct has been further supported as a significant phenomenon of learning, in that the individual's expectancies for control influence his attention to and acquisition of information. The construct is also a factor that could help explain other kinds of behavior directed toward obtaining control over one's environment.

The findings relative to expectancies for control are seen as adding to the results of research conducted in a laboratory setting with simulated tasks which are largely unrelated to the life concerns of those whose expectancies are measured. In the present case, the relevancy of material to be learned to the immediate interests of those individuals being studied is an integral part of the design. To the extent that expectancies of control help govern the rate at which the individual becomes changed in behavior as the result

of interaction with his environment, the construct of internal-external control may have implications for learning in a variety of social contexts.

The degree to which people accept personal responsibility for what happens to them is an important characteristic which has predictive utility in relation to certain kinds of behavior of individuals. However, the extent to which the effect of the internal-external control construct generalizes to different situations is yet unknown. Within the context of the theoretical view guiding this research, the question remains as to whether the effects of the I-E construct are specific to situations which are deemed relevant to control over one's life conditions or whether the effects are generalizable to non-control situations as well. Although this and other related studies provide some support of the former thesis, uncertainties as to the method of approach to discovery of these relationships and/or negative findings cannot allow the interpretation that specificity of application does indeed exist. One is therefore left with the conclusion that a person can be described as possessing a generalized expectancy of control or lack of control over his environment and that this characteristic can affect his willingness to learn some kinds of information.

A close tie is seen between the indicators of intellectual performance and internal-external control. In fact, a reciprocal causal relationship might exist between attribution of

responsibility and achievement. Such expectancies may affect performance, and the level of performance may in turn affect the rate at which the environment dispenses rewards (Katz, 1967). To the extent that performance can be related to learning (and the two are not necessarily the same), individuals who feel they can control their environment may be expected to engage in the kind of intellectual behavior leading to achievement in a variety of pursuits (to include the classroom, employment, etc.).

In relation to participation in occupational education, the construct of internal-external control is assumed to differentiate between those persons who choose to increase their competitive ability as regards employment from those who choose the opposite. Thus, an internal individual may be expected to pursue activities that would yield the kinds of tools with which to deal with his environment. As job training is regarded as such an activity which can lead to employment, an external individual, given the same choice and opportunities, would be expected to be less motivated to participate than would a less external (or internal) individual. Insofar as inmates of one correctional institution are concerned, this kind of prediction was confirmed. Within that institution, (not intended to be representative of all correctional institutions), participation in occupational education was found to be associated with the degree of externality exhibited by inmates.

One implication of the tie between participation and externality is that any description of the characteristics of those who participate in educational programs should not be limited to demographic terms (e.g., age, sex, residence), but should include psychological dimensions such as the one reviewed here. Lacking more empirical evidence to the affirmative, utmost caution must be taken in inferring an automatic tie between participation in educational programs and the psychological variable of internal-external control. However, the theory within which the hypostesized relationship is couched would predict a more generalized effect among those activities which could be construed as leading to control over the individual's outcome.

Implications for Research

Although the study reported here has a very restricted scope and its generalizability is limited accordingly, its results coupled with those of related studies prompt the following implications and recommendations for further research:

1. The known extent of the generalizability of the construct is still limited. Therefore, research should be conducted with the notion of comparing behavior relating to control versus behavior not relating to control. This may be accomplished under tightly controlled conditions as in the present study, and/or within various social contexts as was done in other studies summarized in this report.

2. The problem of operationalizing the "control relevancy" feature of the theory guiding such research is left unsolved. Therefore, further research efforts need to concentrate on manipulating this feature of the construct with the aim of determining the conditions under which the internal-external control variable is operative.

3. Only a minimal attempt has been made at manupulating the expectancy variable of the model (Lefcourt and Ladwig, 1965; Phares, 1966). Further explorations along this line would yield more insight into the differences between internals and externals and could lead to operations for altering such expectancies.

4. No research attempt has been made to measure the value component in the manner in which expectancies are measured. In most research, as in the present case, the value component is assumed to be "controlled" or left for randomization procedures to even out. Liverant (1958) has made a first attempt to develop a personality inventory concentrating on values, using Rotter's social learning theory as a guide. Further development of such scales could result in more direct measurement and investigation of this variable and its relationship to the expectancy variable.

5. The model described as the nucleus of the theory underlying the present research may illuminate a number of research possibilities relating to occupational and social mobility. The ranking of occupations according to their

relative prestige in our society clearly suggest that occupations accorded greater prestige are also more difficult to attain. A serious effort to measure the expectancies of being able to attain certain levels on the occupational hierarchy should result in a negative correlation with a ranking according to prestige (Atkinson, 1957). The present model for expectancies, therefore, may be applied to many of the sociological problems of mobility aspirations. Work by Atkinson (1957) and by Hyman (1953) may be viewed as groundwork for such an analysis.

6. Research relative to the correlates of participation in occupational education programs is sorely lacking, especially as regards the psychological characteristics of participants. Additional research is needed to (1) extend the investigation of the effect of internal-external control on participation to members of other populations, and (2) to identify other related psychological variables that might affect participation.

7. The adapted version of the Internal-External Control Scale (on tape) warrants further use in the overall research project of which this study is a part. The larger project concerns itself with the effect of remedial education for adults on their occupational adjustment and acculturation. Findings which have shown the lower socio-economic groups to exhibit a higher degree of externality than their counterparts in higher classes (Battle and Rotter, 1963; Coleman,

1966) indicate that the internal-external control construct may be particularly useful in predicting the behavior of functionally illiterate adults to whom the overall project is directed. Further use of the construct can especially be seen in relating it to the adult's performance in the adult basic education classroom and to his later adjustment in regards to employment or further job training.

Implications for Occupational Education

No claim is made for generalization of the results of this research to other populations or to dictate practice from the findings. Yet, to examine the results in relation to other findings would yield certain implications for the practical use of such material. Those most salient to the present researcher are as follows:

1. The construct of internal-external control may help explain individual differences in motivation to participate and persist in occupational education programs. An individual with an external orientation may be less motivated than an internal individual to participate in a training program designed to provide a tool (job) with which to manipulate his environment. Equipped with a knowledge of individual differences in expectancies of control, those who would counsel the clientele of occupational education programs should be better prepared to identify and guide potential participants in such programs.

2. Participation in programs of occupational education may lead to changes in externality. Among the antecedents of expectancies of external control are lack of education and unemployment. It seems reasonable to assume that participation in a program which results in the reduction of these handicaps would provide the external individual with cause to view his environment as more amenable to control. The effects of participation in an occupational education program, therefore, may go beyond the achievement of a marketable skill, and include the alteration of the participant's expectancies of control over his environment.

3. The lower socio-economic class is thought to have the highest proportion of members with low expectancies of control. They are also characterized as having a great need for training which would increase their chances for employment and more favorable position in society. The lack of participation on the part of members of this group in occupational education programs may be less due to what is often viewed as lack of motivation or apathy, than to a disbelief that such efforts will be rewarded. Thus, the construct of internal-external control may be useful in delineating the reasons for low participation rates in occupational education among the disadvantaged sector of society.

4. Remedial education programs designed to help qualify adults for occupational education may increase their effectiveness if attempts are made to change external orientations

to more positive internal orientations. That is, in addition to instruction in the fundamental skills such as reading and writing, a systematic approach to direct cultural teaching may serve to change the participant's expectancies of control over his environment. A more positive outlook should then increase the adult's chances for continuing his education or entering job training programs.

5. The internal-external control scale, or variations of it, may serve as a useful tool for the teacher or counselor in attempts to understand factors related to achievement in the classroom. Variations of the scale have been demonstrated to predict differences in learning and other indicators of intellectual performance, and are easily administered in group or individual settings. Further, the adaptions of the original I-E Scale make it useful for a wide range of ages and levels of achievement, providing a flexible inventory for the assessment of an important correlate of achievement.

6. The ameliorization of low expectancies for control assumes more than an academic interest when widespread efforts are being made by government and private agencies to reduce the incidence of poverty and racial barriers, or the same conditions which seem to generate external attitudes and resultant apathy and lack of goal-striving behavior (Lefcourt, 1966). The antecedents of internal-external control attitudes, though not fully explored, may result from the kind of socialization processes experienced by those persons living in the

kind of feudal or paternalistic social structure characteristic of low-income areas of the nation. This reasoning suggests that individuals from such a structure, living largely in an unresponsive environment with few of their needs satisfied, may be largely insensitive to the cues of their environment when they feel that they have little effect upon it, whether in formal learning experiences or from the informal daily cues of their environment. Self-sufficiency and individualism may therefore be wholly lacking in such persons.

The implication for educational policy is one of making the learner's environment one in which reinforcements are contingent upon the individual's own behavior. The "Coleman Report" (Coleman, 1966, p. 325) strongly suggests that this condition is currently not being met - the schools bring little influence to bear on a learner's achievement that is independent of his home background and general social context. Such failure on the part of education means the continued perpetuation of the disadvantages experienced by low-literate adults in an unresponsive environment.

Summary

The purpose of this study was two-fold: (1) to determine the effect of internal-external control on retention of control relevant versus non-control relevant information; and (2) to investigate differences among internal and external prison inmates in their participation in occupational education

programs. A 2 x 3 factorially designed experiment was devised to accomplish the first purpose, with inmates classified according to low, medium or high externality on the basis of scores on an adapted version of Rotter's Internal-External Control Scale. The treatment was in the form of two different sets of instructions intended to manipulate the subject's perception of relevancy to control of items of information relating to parole. For the second purpose, rate of participation was determined by inspection of records for the three inmate groups classified according to degree of externality.

A significant main effect for externality supported the thesis that individuals with low expectancies for control retain less information than less external individuals. Results failed to confirm the hypothesis that differences in amount of information learned by internal and external individuals depend upon the perceived relevancy of information to control, as significant differences existed between internals and external inmates across both types of information. These results were found after adjusting retention scores for the concomitant variables of intelligence, achievement, and age. The latter variables were significantly correlated with the observed retention scores.

The results confirmed the hypothesis that the rate of voluntary participation in occupational education programs

is associated with the degree of externality exhibited by the inmates. The proportion of inmates participating decreased with increasing externality.

The internal-external control construct has been further supported as an important correlate of learning, as well as a concomitant of another kind of behavior (participation) which can lead to more effective control over the individual's environment. These findings were discussed in terms of implications for theory, research and education.

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APPENDICES

APPENDIX A

Psychometric Properties of Rotter's I-E Scale

Appendix Table 9. Rotter's I-E Scale with correlations of each item with total score, excluding that item[1]

Item	Biserial item correlations 200M	200F	400 M+F
1.a. Children get into trouble because their parents punish them too much.	(Filler)		
b. The trouble with most children nowadays is that their parents are too easy with them.			
2.a. Many of the unhappy things in people's lives are partly due to bad luck.	.265	.250	.260
b. People's misfortunes result from the mistakes they make.			
3.a. One of the major reasons why we have wars is because people don't take enough interest in politics.			
b. There will always be wars, no matter how hard people try to prevent them.	.214	.147	.182
4.a. In the long run people get the respect they deserve in this world.			
b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.	.238	.344	.289
5.a. The idea that teachers are unfair to students is nonsence.			

(Continued)

Appendix Table 9. Continued

Item	Biserial item correlations 200M	200F	400 M+F
b. Most students don't realize the extent to which their grades are influenced by accidental happenings.	.230	.131	.179
6.a. Without the right breaks one cannot be an effective leader.	.345	.299	.319
b. Capable people who fail to become leaders have not taken advantage of their opportunities.			
7.a. No matter how hard you try some people just don't like you.	.200	.262	.229
b. People who can't get others to like them don't understand how to get along with others.			
8.a. Heredity plays the major role in determining one's personality.		(Filler)	
b. It is one's experiences in life which determine what they're like.			
9.a. I have often found that what is going to happen will happen.	.152	.172	.164
b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.			

(Continued)

Appendix Table 9. Continued

Item	Biserial item correlations 200M	200F	400 M+F
10.a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.			
b. Many times exam questions tend to be so unrelated to course work that studying is really useless.	.227	.252	.238
11.a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.			
b. Getting a good job depends mainly on being in the right place at the right time.	.391	.215	.301
12.a. The average citizen can have an influence in government decisions.			
b. This world is run by the few people in power, and there is not much the little guy can do about it.	.3.3	.222	.265
13.a. When I make plans, I am almost certain that I can make them work.			
b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.	.252	.285	.271

(Continued)

Appendix Table 9. Continued

Item	Biserial item correlations 200M	200F	400 M+F
14.a. There are certain people who are just no good.	(Filler)		
b. There is some good in everybody.			
15.a. In my case getting what I want has little or nothing to do with luck.			
b. Many times we might just as well decide what to do by flipping a coin.	.369	.209	.288
16.a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.	.295	.318	.307
b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.			
17.a. As far as world affairs are concerned, most of us are victims of forces we can neither understand nor control.	.313	.407	.357
b. By taking an active part in political and social affairs the people can control world events.			
18.a. Most people don't realize the extent to which their lives are controlled by accidental happenings.	.258	.362	.310
b. There really is no such thing as "luck."			

(Continued)

Appendix Table 9. Continued

Item	Biserial item correlations 200M	200F	400 M+F
19.a. One should always be willing to admit mistakes.		(Filler)	
b. It is usually best to cover up one's mistakes.			
20.a. It is hard to know whether or not a person really likes you.	.255	.307	.271
b. How many friends you have depends upon how nice a person you are.			
21.a. In the long run the bad things that happen to us are balanced by the good ones.	.108	.197	.152
b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.			
22.a. With enough effort we can wipe out political corruption.			
b. It is difficult for people to have much control over the things politicans do in office.	.226	.224	.227
23.a. Sometimes I can't understand how teachers arrive at the grades they give.	.275	.248	.255
b. There is a direct connection between how hard I study and the grades I get.			

(Continued)

Appendix Table 9. Continued

Item	Biserial item correlations 200M	200F	400 M+F
24.a. A good leader expects people to decide for themselves what they should do.		(Filler)	
b. A good leader makes it clear to everybody what their jobs are.			
25.a. Many times I feel that I have little influence over the things that happen to me.	.521	.440	.480
b. It is impossible for me to believe that chance or luck plays an important role in my life.			
26.a. People are lonely because they don't try to be friendly.			
b. There's not much use in trying too hard to please people, if they like you, they like you.	.179	.227	.195
27.a. There is too much emphasis on athletics in high school.		(Filler)	
b. Team sports are an excellent way to build character.			
28.a. What happens to me is my own doing.			
b. Sometimes I feel that I don't have enough control over the direction my life is taking.	.331	.149	.238

(Continued)

Appendix Table 9. Continued

Item	Biserial item correlations 200M	200F	400 M+F
29.a. Most of the time I can't understand why politicans behave the way they do.	.004	.211	.109
b. In the long run the people are responsible for bad government on a national as well as on a local level.			

Note. - Score is number of underlined external items.

[1]Reproduced from Rotter (1966, pp. 11-12).

Appendix Table 10. Internal-external control test data: reliability and discriminant validity[1]

Sample	Type	N	Sex	r
	Internal consistency			
Ohio State University elementary psychology students	Split half	50	M	.65
	Spearman-Brown	50	F	.79
Sample I		100	M-F	.73
	Kuder-Richardson	50	M	.70
		50	F	.76
		100	M-F	.73
Ohio State University elementary psychology students	Kuder-Richardson	200	M	.70
		200	F	.70
		400	M-F	.70
National stratified sample	Kuder-Richardson	1000	M-F	.69
Purdue opinion poll 10th, 11th, 12th grades				
	Test-retest reliability			
Ohio State University elementary psychology students	1 month Group administration	30	M	.60
		30	F	.83
		60	M-F	.72
Prisoners Colorado Reformatory	1 month	28	M	.78
Ohio State University elementary psychology students	2 months 1st group administration 2nd individual administration	63	M	.49
		54	F	.61
		117	M-F	.55

(Continued)

Appendix Table 10. Continued

Sample	Type	N	Sex	r
Correlation with Marlowe-Crowne Social Desirability Scale				
Ohio State University elementary psychology students		166 140 306	M F M-F	-.16 -.32 -.21
Ohio State University elementary psychology students		136	M	-.22
Ohio State University elementary psychology students		180	F	-.12
Ohio State University elementary psychology students		103 77 180	M F M-F	-.17 -.35 -.29
Kansas State University elementary psychology students		113	M-F	-.28
Ohio Federal prisoners Ages 18-26, 8th grade plus reading		80	M	0.41
Correlation with intellectual measures				
Ohio State University elementary psychology students	Ohio State Psychological exam	107	F	-.09
Ohio State University elementary psychology students	Ohio State Psychological exam	26 46 72	M F M-F	.03 -.22 -.11
Ohio Federal prisoners ages 18-26, 8th grade plus reading	Revised beta IQ	80	M	.01

[1]Reproduced in part from Rotter (1966, pp. 13-14).

Appendix Table 11. Means and standard deviations of I-E scores for samples of several populations[1]

Sample	Testing Conditions	N	Sex	Mean	SD
Ohio State University elementary psychology students (combined samples)	Group Experimental	575 605	M F	8.15 8.42	3.88 4.06
Kansas State University elementary psychology students	Group Experimental	45 68 113	M F M-F	7.71 7.75 7.73	3.84 3.79 3.82
University of Connecticut elementary psychology students	Group Experimental	134 169 303	M F M-F	8.72 9.62 9.22	3.59 4.07 3.88
Florida State University Negro students, phychology classes	Group Experimental	116	M-F	9.05	3.66
Peace Corps trainees (three programs combined)	Group Assessment	122 33 155	M F M-F	6.06 5.48 5.94	3.51 2.78 3.36
Prisoners, ages 18-26 8th grade plus reading	Individual Experiment	80	M	7.72	3.65
Columbus, Ohio 12th grade, college applicants	Small groups (3-12) Experimental	41 32	M F	8.46 7.31	3.89 3.64
National stratified sample, Purdue opinion poll, 10th, 11th, and 12th grades	Various	1000	M-F	8.50	3.74
18-year-old subjects from Boston area	Individual	32 25 57	M F M-F	10.00 9.00 9.56	4.20 3.90 4.10

[1]Reproduced from Rotter (1966, p. 15).

APPENDIX B

Scripts for Taped Retention Items (Control and Non-control Relevant), Including Answer Sheets

Control Relevant Items

We are interested in putting together some information on the prison system as it exists today, in 1968. However, we need your help in deciding which facts to include and which facts to leave out.

I am going to read to you several statements of facts about the North Carolina prison system as it operates today. We need to know two things about such information. First, we need to know whetner it would be interesting to those people who would read it.

In order to find out how interesting the items of information are, we will pass out sheets of paper on which you can indicate your interest in such.

(tape off)

You have been given a sheet of paper on which we want you to indicate your interest in the items of information you are about to hear. This is the way you are to use them:

Notice that there are two columns of blank lines, with two lines for each number ranging from one to 23. The left column is headed "interesting." The right column is headed "not interesting." After hearing a statement on the tape, we want you to decide whether the information is interesting or not interesting to you. If a statement is <u>interesting</u> to you, put an "X" in the left column. However, if the statement is <u>not interesting</u> to you, put an "X" in the right column.

Please do not mark your answer sheets until I tell you to begin. I will read each item of information twice. Please listen carefully to each item before marking your answer sheet. If you have trouble or wish for me to stop, please let me know. Please do not discuss any of the items until we are finished with the survey.

Are there any questions before we go on?

(tape off)

Let's now listen to the items of information. Are you ready? Listen carefully.

Please check to be sure your answer sheets are filled out and that your name is at the top. We only need your name so that we can put this sheet together with another that you will fill out in a few moments.

(tape off)

Next, we need to know how well the facts are remembered after a person has once read or heard them. You have had a chance to hear the statements, so we now would like for you to respond to some questions about the statements. This is not a test - your answers will not be graded - but we want you to try hard to remember and put down your best answer. Please do not worry about how your neighbor answers his questions - he may be wrong. We will now pass out some answer sheets for you to use in marking your answers, and we will explain how this is to be done.

(tape off)

Here is the way in which you are to mark your answer sheets: You have before you a sheet which lists 23 different combinations of answers to the questions which I am about to read.

An example is shown above the dotted line at the top of your sheet. Let's look at the example and practice marking your answer sheet. Suppose that I had said: "About 8 out of 10 inmates in the North Carolina prison system are males." The question corresponding to this item may be "How many inmates in the prison system are males?" Note that the four possible answers for item number one above the dotted line on the sheet before you are: 1 out of 5, 1 out of 3, 8 out of 10, and 1 out of 8. In this case, the answer to the question is 8 out of 10. So, put a circle around 8 out of 10 for the example on your paper.

You will follow this procedure for the remainder of the questions. Do not worry about remembering specific dates. All of the facts are about things that apply today. We will begin with item number <u>one</u> <u>below</u> the dotted line. Are there any questions?

Listen very carefully and do your best.

Item number <u>one</u>:

(tape off)

(Information Items)

1. The average age of prison employees is 37 years.*

2. Currently, married parolees have a better chance to complete parole than do single parolees.

3. About one-half of all inmates requesting it are currently given parole.

4. At present, at least two out of three board members must approve a parole request before it can be granted.

5. Last year, twelve hundred men were placed on parole. Out of these, nine hundred successfully completed parole.

6. Today, out of every 100 inmates paroled, only 2 commit new crimes while they are on parole.

7. Today, a major factor that helps inmates get paroled is an active interest by the inmate's family.

8. In 1968, more than 9 out of 10 inmates with in-determinate sentences will be released on condition for a period of parole supervision before the end of their sentences.

9. It costs about $4.50 per day to keep a man in prison.*

10. A long record as a juvenile delinquent is now considered one reason for rejecting an inmate's parole request.

11. The parole board interviews only felonies with sentences over two years.

12. It is expected that this year 200 parolees will be returned to prison. Of these, 40 are expected to be returned because of failure to report while on parole.

13. In 1968, about one out of three men to be paroled from prison will get a job for which they were trained while in prison.

14. This year the main reason for delay of parole requests is expected to be problems in finding a job for the parolee.

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*Filler item

15. It is expected that most successful parolees will have taken part in some kind of voluntary educational program during their prison term.

16. Last year, a survey of inmates about to be paroled showed that a good portion of them expected to be earning $400 per month after their release.

17. On the average, a parole officer now has 50 parolees under his supervision.

18. Serving more than three years in prison is currently considered unfavorable to an inmate's chances of being paroled.

19. It is expected that parole officials will find a job for about 10 percent of men paroled from prison.

20. The average cost per day of supervising a parolee is currently $.73.

21. All inmates must now be approved for work release by the parole board except for those court recommended.

22. Currently, the saving to the Department of Correction by parole supervision alone is nearly three million dollars.

23. There are currently about 8000 inmates in the North Carolina prison system.*

(Questions)

1. What is the average age of prison employees?

   35 37 42 52

2. Which of the following have a better chance to complete parole?

   Single parolees Divorced parolees Widowed parolees

   Married parolees

3. Of all inmates requesting parole, about how many are given parole?

   1/2 1/4 1/3 3/4

---

*Filler item

4. How many parole board members have to approve a request in order for parole to be granted?

   1 out of 3 2 out of 3 3 out of 4 1/2

5. How many parolees successfully completed parole last year?

   400 600 900 300

6. How many inmates commit new crimes while on parole?

   15 out of 100 25 out of 100 6 out of 100 2 out of 100

7. What is a major factor that helps inmates get paroled?

   Age Length of sentence Active Family interest Good work

8. Of those inmates with in-determinate sentences, how many will be released on condition for a period of parole supervision before the end of their sentences?

   3 out of 5 6 out of 8 9 out of 10 1/2

9. How much does it cost per day to keep a man in prison?

   $1.50 $4.50 $3.00 $3.50

10. What is one of the major reasons for an inmate's parole request being rejected?

    Type of offense Length of sentance Age Long juvenile record

11. The parole board interviews only felonies with over how many years sentence?

    4 years 5 years 2 years 1 year

12. What is expected to be the reason for one out of five parolees being returned to prison?

    Unable to find a job Being charged with other crimes Leaving the state Failure to report while on parole

13. How many men to be paroled from prison are expected to get a job for which they were trained while in prison?

    1 out of 6 1 out of 5 1/2 1 out of 3

14. What is expected to be the main reason for delay of parole requests this year?

Long investigations | No recommendations | Problems in finding a job | Out of state requests

15. What will most of the successful parolees have done that will help them get paroled?

Served long sentences | Taken part in athletics | Played in the band | Taken part in educational programs

16. How much money do parolees expect to earn per month upon being released from prison?

$500 $400 $300 $200

17. On the average, how many parolees does a parole officer have under his supervision?

75 100 30 50

18. An inmate's chances of being paroled are decreased if he serves more than how many years?

3 years 2 years 6 years 10 years

19. For how many parolees do parole officers find a job?

20% 10% 30% 50%

20. What is the average cost per day of supervising a parolee?

$1.50 $1.75 $.73 $.87

21. Except in those cases where it is court recommended, who has to approve an inmate's being placed on work release?

A prison committee | Work release board | Unit Commander | Parole board

22. How much does the Department of Correction save by parole supervision?

$2 million $3 million $5 million $6 million

23. About how many inmates are in the North Carolina prison system?

4000 6000 8000 9000

Non-Control Relevant Items

We are interested in putting together some information on the North Carolina prison system as it developed throughout the years. However, we need your help in deciding which facts to include and which facts to leave out.

I am going to read to you several statements of facts about the North Carolina prison system as it developed over the years, beginning in 1940 or nearly 30 years ago. We need to know two things about such information. First, we need to know whether it would be interesting to those people who would read it.

In order to find out how interesting the items of information are, we will pass out sheets of paper on which you can indicate your interest in such.

(tape off)

You have been given a sheet of paper on which we want you to indicate your interest in the items of information you are about to hear. This is the way you are to use them:

Notice that there are two columns of blank lines, with two lines for each number ranging from one to 23. The left column is headed "interesting." The right column is headed "not interesting." After hearing a statement on the tape, we want you to decide whether the information is interesting or not interesting to you. If a statement is <u>interesting</u> to to you, put an "X" in the left column. However, if the statement is <u>not interesting</u> to you, put an "X" in the right column.

Please do not mark your answer sheets until I tell you to begin. I will read each item of information twice. Please listen carefully to each item before marking your answer sheet. If you have trouble or wish for me to stop, please let me know. Please do not discuss any of the items until we are finished with the survey.

Are there any questions before we go on?

(tape off)

Let's now listen to the items of information. Are you ready? Listen carefully.

Please check to be sure your answer sheets are filled out and that your name is at the top. We only need your name so that we can put this sheet together with another that you will fill out in a few moments.

(tape off)

Next, we need to know how well the facts are remembered after a person has once read or heard them. You have had a chance to hear the statements, so we now would like for you to respond to some questions about the statements. This is not a test - your answers will not be graded - but we want you to try hard to remember and put down your best answer. Please do not worry about how your neighbor answers his questions - he may be wrong.

We will pass out some answer sheets for you to use in marking your answers, and we will explain how this is to be done.

(tape off)

Here is the way in which you are to mark your answer sheets: You have before you a sheet which lists 23 different combinations to answers to the questions which I am about to read.

An example is shown above the dotted line at the top of your sheet. Let's look at the example and practice marking your answer sheet. Suppose that I had said: "About 8 out of 10 inmates in the Carolina prison system are males." The question corresponding to this item may be "How many inmates in the prison system are males?" Note that the four possible answers for item number one above the dotted line on the sheet before you are: 1 out of 5, 1 out of 3, 8 out of 10, and 1 out of 8. In this case, the answer to the question is 8 out of 10. So, put a circle around 8 out of 10 for the example item on your paper.

You will follow this procedure for the remainder of the questions. Do not worry about remembering specific dates. All of the facts are about things that applied several years ago. We will begin with item number <u>one</u> <u>below</u> the dotted line. Are there any questions?

Listen very carefully and do your best.

Item number <u>one</u>:

(tape off)

(Information Items)

1. In 1947, the average age of prison employees was 37 years.*

2. Years ago, married parolees had a better chance to complete parole than did single parolees.

3. Twenty years ago, about one-half of all inmates requesting it were given parole.

4. In 1943, at least two out of three board members had to approve a parole request before it could be granted.

5. In 1946, 1200 men were placed on parole. Of these, 900 successfully completed parole.

6. In 1940, out of every 100 inmates paroled, only 2 committed new crimes while on parole.

7. In 1945, a major factor that helped inmates get paroled was an active interest by the inmate's family.

8. In 1948, more than nine out of ten inmates with in-determinate sentences were released on condition for a period of parole supervision before the end of their sentences.

9. In the 1940's, it cost about $4.50 per day to keep a man in prison.*

10. In the early 1940's, a long record as a juvenile delinquent was considered as one reason for rejecting an inmate's parole request.

11. In 1952, the parole board interviewed only felonies with sentences over two years.

12. In 1947, two hundred parolees were returned to prison. Of these, forty were returned because they had failed to report while on parole.

13. In 1954, about one out of every three men paroled from prison got a job for which they were trained while in prison.

14. In 1954, the main reason for delay of parole requests was problems in finding a job for the parolee.

---

*Filler item

15. In 1951, most successful parolees had taken part in some kind of voluntary educational program during their prison term.

16. Over 20 years ago, a survey of inmates about to be paroled showed that a good portion of them expected to be earning $400 per month after their release.

17. In 1949, on the average, a parole officer had 50 parolees under his supervision.

18. In 1952, serving more than three years in prison was considered unfavorable to an inmate's chances of being paroled.

19. In 1945, parole officials found a job for about te percent of men paroled from prison.

20. In the 1940's, the average cost per day of supervising a parolee was $.73.

21. In 1950, all inmates had to be approved for work release by the parole board except for those court recommended.

22. In one year in the 1940's the saving to the Department of Correction by parole supervision alone was nearly three million dollars.

23. In the 1940's, there were about 8000 inmates in the North Carolina Prison System.*

(Questions)

1. What was the average age of prison employees in 1947?

   35 37 42 52

2. Which of the following had a better chance to complete parole?

   Single parolees Divorced parolees Widowed parolees

   Married parolees

3. Of all inmates requesting parole, about how many were given parole?

   1/2 1/4 1/3 3/4

---

*Filler item

4. How many parole board members had to approve a request in order for a parole to be granted?

   1 out of 3 2 out of 3 3 out of 4 1/2

5. About how many parolees successfully completed parole in 1946?

   400 600 900 300

6. How many inmates committed new crimes while on parole?

   15 out of 100 25 out of 100 6 out of 100 2 out of 100

7. What was a major factor that helped inmates get paroled?

   Age Length of sentence Active family interest Good work

8. Of those inmates with in-determinate sentences, how many were released on condition for a period of parole supervision before the end of their sentence?

   3 out of 5 6 out of 8 9 out of 10 1/2

9. How much did it cost per day to keep a man in prison in the 1940's?

   $1.50 $4.50 $3.00 $3.50

10. What was one of the major reasons for an inmate's parole request being rejected?

    Type of offense Length of sentence Age Long juvenile record

11. All inmates interviewed by the parole board were felonies with over how many years sentence?

    4 years 5 years 2 years 1 year

12. What was the reason for about one out of five parolees being returned to prison?

    Unable to find a job Being charged with other crimes Leaving the state Failure to report while on parole

13. How many parolees got a job for which they were trained while in prison?

    1 out of 6 1 out of 5 1/2 1 out of 3

14. What was the main reason for delay of parole request?

Long investigations | No recommendations | Problem in finding a job | Out of state requests

15. What had most of the successful parolees done that helped them get paroled?

Served long sentences | Taken part in athletics | Played in the band | Taken part in educational programs

16. How much money did parolees expect to earn per month upon being released from prison?

$500 | $400 | $?00 | $200

17. On the average, how many parolees did a parole officer have under his supervision?

75 | 100 | 30 | 50

18. In 1952, an inmate's chances of being paroled were considered decreased if he had served more than how many years?

3 years | 2 years | 6 years | 10 years

19. For how many parolees did parole officials find a job?

20% | 10% | 30% | 50%

20. What was the average cost per day of supervising a parolee in the 1940's?

$1.50 | $1.75 | $.73 | $.87

21. Except in those cases where it was court recommended, who had to approve an inmate's being placed on work release?

A prison committee | Work release board | Unit Commander | Parole Board

22. How much did the Department of Correction save by parole supervision?

$2 million | $3 million | $5 million | $6 million

23. About how many inmates were in the prison system in the 1940's?

4000 | 6000 | 8000 | 9000

Put an "X" on One of The Blanks For
Each Numbered Statement

	Interesting	Not Interesting
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____
10.	_____	_____
11.	_____	_____
12.	_____	_____
13.	_____	_____
14.	_____	_____
15.	_____	_____
16.	_____	_____
17.	_____	_____
18.	_____	_____
19.	_____	_____
20.	_____	_____
21.	_____	_____
22.	_____	_____
23.	_____	_____

PLACE A CIRCLE AROUND YOUR ANSWER

(Example)	1 out of 5	1 out of 3	8 out of 10	1 out of 8
1.	35	37	42	52
2.	Single Parolees	Divorced Parolees	Widowed Parolees	Married Parolees
3.	1/2	1/4	1/3	3/4
4.	1 out of 3	2 out of 3	3 out of 4	1/2
5.	400	600	900	300
6.	15	25	6	2
7.	Age	Length of Sentence	Active Family Interest	Good Work
8.	3 out of 5	6 out of 8	9 out of 10	1/2
9.	$1.50	$4.50	$3.00	$3.50
10.	Type of Offense	Length of Sentence	Age	Long Juvenile record
11.	4 years	5 years	2 years	1 year
12.	Unable to find a job	Being charged with other crimes	Leaving the state	Failure to report on parole
13.	1 out of 6	1 out of 5	1/2	1 out of 3
14.	Long Investigation	No Recommendations	Problems in finding a job	out of state requests
15.	Served long sentences	Taken part in Athletics	Played in the band	Taken part in Educational programs
16.	$500	$400	$300	$200
17.	75	100	30	50
18.	3 years	2 years	6 years	10 years
19.	20%	10%	30%	50%
20.	$1.50	$1.75	$.72	$.87
21.	Prison Committee	Work Release Board	Unit Commander	Parole Board
22.	$2 Million	$3 Million	$5 Million	$6 Million
23.	4000	6000	8000	9000

APPENDIX C

Script for Taped I-E Scale and

Answer Sheet

I-E Tape Script

Hello, you are about to participate in a survey of opinions about things that happen to all adults day by day. Your participation in this survey will help us to better understand the likes and dislikes of adults of all ages across the country. Your personal answers to the survey will be confidential and in no way shared with other people. Be as honest as you can and do not puzzle very long over answering any statement on this survey. Please respond to every statement even if you have to guess. There are no right or wrong answers to any of the statements. Just give your best and most honest answers possible. I am going to read to you statements about yourself and you are to choose the one which best describes the way you feel. You will make your choice by marking the answer sheet before you.

Before going on to the survey, let's practice marking the answer sheet. Now look at your answer sheet and see that there are circles containing the letter "A" and squares containing the letter "B." Your response to each statement which I am about to read to you will be marked on the circles and squares.

We are going to practice marking the answer sheet by marking the circles and squares above the red line near the top of the answer sheet. This is the way you will use the circles and squares to show your choice of answers to the statements: I will read two statements at a time. You are

to choose the one statement of the two that best describes how you feel.

Now let's try. Listen carefully to the complete statement before marking your answer sheet.

Item number one: Would you rather (a) play baseball, or (b) play cards? Again, item number one: Would you rather (a) play baseball, or (b) play cards?

Now here is the way that you are to mark your answer sheet: Look at item number one above the red line on your answer sheet. If you had rather play baseball, put an "X" in the circle containing the letter "a." If you had rather play cards, put an "X" in the square containing the letter "b."

Let's try another question. Item number two: Would you rather (a) see a movie, or (b) read a book? Look at number two above the red line. If you had rather see a movie, put an "X" on the circle that contains the letter "a." If you had rather read a book, put an "X" on the square that contains the letter "b."

You will have a few seconds in which to mark your answer to the statements. I will read each statement only one time. At the sound of the bell (bell sound) you should be ready to listen for the next statement.

I will now answer any questions at this point. (Pause)

Let's now begin the survey by marking your answer sheet just as you did for the sample questions. We will begin with

item number three just below the red line. Are you ready?

Listen carefully. (Bell sound)

(I-E Scale)

1. Many of the unhappy things in people's lives are due to
   A. Bad luck
   B. The mistakes they make

2. There will always be wars because
   A. People don't take enough interest in politics
   B. There is nothing we can do to prevent war

3. When we speak of people being respected, more often than not
   A. People get the respect they deserve
   B. People do not get much respect no matter how hard they try

4. When students get low grades it is because
   A. Teachers are actually unfair
   B. The students do not put forth enough effort

5. People who fail to become good leaders do so because
   A. They just don't get the right breaks
   B. They fail to take advantage of their own opportunities

6. Sometimes people don't like you
   A. No matter how hard you try
   B. Because you don't understand how to get along with them

7. What the future holds for me depends upon
   A. My being lucky
   B. My own decisions in taking a definite course of action

8. If a student knows his lessons
   A. There is no such thing as an unfair test
   B. His studying is often useless because many times test questions do not cover what he studies

9. Becoming a success depends on
   A. Hard work
   B. Being lucky

10. The decisions made by our government
   A. Depend upon what the average citizen says
   B. Are made by few people in power and there is not much the little guy can do about it

11. When a person makes plans it is best
    A. To plan far ahead with the idea of being able to carry them out
    B. Not to plan very far ahead because many things turn out to be a matter of good or bad fortune anyhow

12. Getting what you want
    A. Has little or nothing to do with being lucky
    B. May as well be decided by just flipping a coin

13. Who gets to be the boss often depends on
    A. Being lucky
    B. Something other than being lucky

14. The control of world events
    A. Is in the hands of forces beyond our understanding or control
    B. Can be had by ordinary people taking an active part in political and social affairs

15. Most people's lives are controlled
    A. By accidental happenings
    B. By their own actions

16. Whether or not a person really likes you
    A. Is hard to tell
    B. Depends on how nice a person you are

17. The bad things that happen to us
    A. Are mainly due to chance
    B. Are mainly due to lack of ability, laziness, or the like

18. Political corruption
    A. Can be wiped out if we try hard enough
    B. Is mainly beyond our control

19. How teachers arrive at the grades they give
    A. Is beyond your understanding
    B. Depends on how hard a person studies

20. The things that happen to you in life
    A. Are determined mainly by chance and luck
    B. Have nothing to do with chance and luck

21. People are lonely because
    A. They don't try to be friendly
    B. No matter how hard they try to please, people may or may not like them

22. What happens to you in life
    A. Is your own doing
    B. Is beyond your personal control

23. The way politicans behave
    A. Is beyond your understanding
    B. Is the responsibility of the people

NAME_____

1.	Ⓐ	B
2.	Ⓐ	B
3.	Ⓐ	B
4.	Ⓐ	B
5.	Ⓐ	B
6.	Ⓐ	B
7.	Ⓐ	B
8.	Ⓐ	B
9.	Ⓐ	B
10.	Ⓐ	B
11.	Ⓐ	B
12.	Ⓐ	B
13.	Ⓐ	B
14.	Ⓐ	B
15.	Ⓐ	B
16.	Ⓐ	B
17.	Ⓐ	B
18.	Ⓐ	B
19.	Ⓐ	B
20.	Ⓐ	B
21.	Ⓐ	B
22.	Ⓐ	B
23.	Ⓐ	B
24.	Ⓐ	B
25.	Ⓐ	B
26.	Ⓐ	B
27.	Ⓐ	B
28.	Ⓐ	B
29.	Ⓐ	B
30.	Ⓐ	B
31.	Ⓐ	B
32.	Ⓐ	B
33.	Ⓐ	B
34.	Ⓐ	B
35.	Ⓐ	B
36.	Ⓐ	B
37.	Ⓐ	B
38.	Ⓐ	B
39.	Ⓐ	B
40.	Ⓐ	B
41.	Ⓐ	B
42.	Ⓐ	B
43.	Ⓐ	B
44.	Ⓐ	B
45.	Ⓐ	B
46.	Ⓐ	B
47.	Ⓐ	B
48.	Ⓐ	B
49.	Ⓐ	B
50.	Ⓐ	B
51.	Ⓐ	B
52.	Ⓐ	B
53.	Ⓐ	B
54.	Ⓐ	B
55.	Ⓐ	B
56.	Ⓐ	B
57.	Ⓐ	B
58.	Ⓐ	B
59.	Ⓐ	B
60.	Ⓐ	B
61.	Ⓐ	B
62.	Ⓐ	B
63.	Ⓐ	B
64.	Ⓐ	B
65.	Ⓐ	B
66.	Ⓐ	B
67.	Ⓐ	B
68.	Ⓐ	B
69.	Ⓐ	B
70.	Ⓐ	B
71.	Ⓐ	B
72.	Ⓐ	B
73.	Ⓐ	B
74.	Ⓐ	B
75.	Ⓐ	B
76.	Ⓐ	B

APPENDIX D

Additional Data

Appendix Table 12. Means and standard deviations for externality, retention, achievement, I.Q., and age (N = 216)

Variable	Mean	S.D.
Externality	7.95	3.19
Retention	10.91	4.26
Achievement	4.31	2.33
I.Q.	87.00	13.71
Age	31.71	8.95

Appendix Table 13. Frequency and cumulative percent of I-E Scale scores

I-E Score [a]	f	Cum. %
16	2	100.00
15	1	99.07
14	5	98.61
13	6	96.30
12	16	93.52
11	19	86.11
10	23	77.32
9	22	66.67
8	28	56.48
7	22	43.52
6	20	33.33
5	21	24.07
4	16	14.35
3	5	6.94
2	5	4.63
1	2	2.32
0	3	1.39

[a] N = 216; Mean = 7.95; SD = 3.19

Appendix Table 14. Frequency and cumulative percent of retention scores

Retention Score [a]	f	Cum. %
1	0	0
2	2	.93
3	2	1.85
4	6	4.63
5	7	7.87
6	12	13.43
7	19	22.22
8	27	34.72
9	23	45.37
10	13	51.39
11	17	59.26
12	12	64.81
13	14	71.30
14	15	78.24
15	8	81.94
16	11	87.04
17	9	91.20
18	8	44.91
19	6	97.69
20	5	100.00

[a] N = 216; Mean = 10.91; SD = 4.26

Appendix Table 15. Orthogonal comparison key-out and results for tests of main effects and interaction

Control Relevancy	A_1			A_2			df	Q	div.	MS
Externality	B_1	B_2	B_3	B_1	B_2	B_3				
Totals	528.84	398.16	300.96	446.04	362.16	311.04				
A	+1	+1	+1	-1	-1	-1	1	99	216	45.37 [c]
B_L	+1	0	-1	+1	0	-1	1	353	144	865.34 [a]
B_D	+1	-2	+1	+1	-2	+1	1	76	432	13.48
A B_L	+1	0	-1	-1	0	+1	1	103	144	73.67 [b]
A B_D	+1	-2	+1	-1	+2	-1	1	10	432	.02
Error							210			13.80

[a] $P < .001$

[b] $P < .02$

[c] $P < .07$

Appendix Table 16. Orthogonal comparison key-out and results for tests of simple effects.

Control Relevancy		A_1			A_2			df	Q	Div.	MS
Externality		B_1	B_2	B_3	B_1	B_2	B_3				
Totals		528.84	398.16	300.96	446.04	362.16	311.04				
	A	+1	+1	+1	-1	-1	-1	1	99	216	45.37[c]
A_1	B_L	-1	0	+1	0	0	0	1	228	72	722.00[a]
A	B_D	+1	-2	+1	0	0	0	1	34	216	5.35
A_2	B_L	0	0	0	-1	0	+1	1	125	72	217.00[a]
A	B_D	0	0	0	+1	-2	+1	1	43	216	8.56
Error								210			13.80

[a] $p < .001$

[c] $p < .07$

Appendix Table 17. Correlation Matrix of I.Q., achievement, age, externality and retention

	I.Q.	Ach.	Age	I-E	Ret.
I.Q.	—	.63[a]	-.06	-.37[a]	.48[a]
Ach		—	-.11	-.40[a]	.63[a]
Age			—	.02	-.23[a]
I-E				—	-.50[a]
Ret					—

[a] $P < .01$

Table 18. Analysis of variance for retention test reliability

Source	SS	df	MS
Subjects	193.22	215	.90
Items	107.12	19	5.64
S x I (error)	772.84	4085	.19
Mean	1248.08	1	1248.07

[1] $\text{Reliability} = 1 - \frac{\text{Error Variance}}{\text{Variance Among Individuals}}$

Appendix Table 19. Analysis of variance for I-E Scale reliability [1]

Source	SS	df	MS
Subjects	90.68	215	.43
Items	223.57	23	10.16
S x I	777.95	4730	.17
Mean	561.06	1	561.06

[1] $\text{Reliability} = 1 - \frac{\text{Error Variance}}{\text{Variance Among Individuals}}$